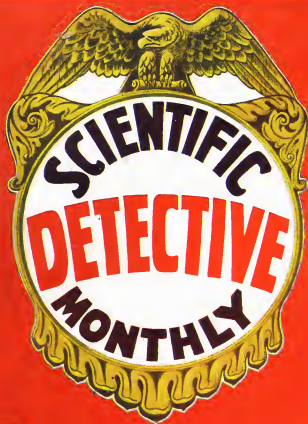


ARTHUR B. REEVE Creator of CRAIG KENNEDY, *Editorial Commissioner*



April
1930

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HUGO GERNSBACK
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CRIME . . . SCIENCE

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VOLUME I
NUMBER 4

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N. J. STONE

Art and Mechanical Deputy

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ON THE COVER

THE accessories to science are often weird and gruesome. On our cover for this month, Paul, the most popular scientific illustrator in the country, has depicted with faithful detail a protective suit, such as worn by workers in Radium, that fearsome and strange element. This suit is made of rubber and lead, to guard the wearer from the deadly rays emanating from radium and its salts. We dare not explain the picture more fully for fear of "giving away" the story; but you will find this incident in RAYS OF DEATH, an exciting two-part serial by Tom Curry, which starts in this issue.

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SCIENTIFIC DETECTIVE MONTHLY is published on the 15th of the preceding month. 12 numbers per year. Subscription price is \$2.10 a year in the United States and its possessions. In Canada and foreign countries, \$3.00 a year. Single copies 25c. Address all contributions for publication to Editor, SCIENTIFIC DETECTIVE MONTHLY, 68-66 Park Place, New York, N. Y. Publishers are not responsible for lost Mss. Contributions cannot be returned unless authors remit full postage.

SCIENTIFIC DETECTIVE MONTHLY is for sale at principal newsstands in the United States and Canada. Printed in U. S. A.

IF YOU WISH TO SUBSCRIBE TO SCIENTIFIC DETECTIVE MONTHLY, make out all remittances to the Techni-Craft Publishing Co. Be sure to mention the name of the magazine you wish to subscribe for, as we are also agents for the following magazines: RADIO-CRAFT, SCIENCE WONDER STORIES, and AIR WONDER STORIES, subscription price of which is the same as SCIENTIFIC DETECTIVE MONTHLY. Subscriptions can be made in combination with the above publications, at a reduced club rate. Ask for information. Subscriptions start with current issue. WHEN YOUR SUBSCRIPTION EXPIRES, we enclose a renewal blank in the last number. No subscriptions continued unless renewal remittance is received. CHANGE OF ADDRESS. Always give us old as well as new address and notify us as far in advance as possible.

Published by TECHNICAL-CRAFT PUBLISHING CORPORATION

H. GERNSBACK, President

J. M. HERZBERG, Vice-President
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Publication Office, 404 North Wesley Avenue, Mount Morris, Ill.

Editorial and General Offices, 96-98 Park Place, New York, N. Y.

Chicago Advertising Representative—L. F. McClure, 737 N. Michigan Ave.

London Hachette & Co.,
16-17 King William St., Charing Cross, W.C. 2

Paris: Hachette & Co.,
111 Rue Neuve

Australian Agent: McGill's Agency
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Not By Correspondence

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Harry A. Ward, Iowa.

"I knew nothing about Electricity, before I went to Coyne," says Nolan H. MacLeary. "I had no advanced education and so little money that I could never have stayed at school, if Mr. Lewis hadn't gotten me a part-time job. Yet I finished the course in twelve weeks, and the School immediately placed me in a fine electrical job. Now I am Chicago District Manager of the largest electrical concern of its kind in the world, making more money than I ever dreamed of making before I went to Coyne. I am convinced that there is but ONE RIGHT WAY to learn electricity and that



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Joseph F. Hartley, West Virginia.

His Advice—"Go To Coyne"

"Some fellows try to learn Electricity by just working at it. Others send away for correspondence courses in it. But my advice to anyone who really wants to learn Electricity is TO GO TO COYNE. They have all the electrical equipment right in the school that you will ever see in the field. NO PICTURES OR USELESS THEORY. They show you just how to do everything you will have to do on the job."

R. M. Ayers, Louisiana.

Nothing Compares to Practical Training

"Before going to Coyne, I took a correspondence course in Electricity, but it was too deep for me and I lost interest. Then I got your catalog, saw how you let the student actually work on electrical equipment, and decided to go to Coyne. At that time I was only making \$9.00 a week. Now I make \$68.00 a week straight time, have a Hudson car and own my home—where before I could hardly pay rent."

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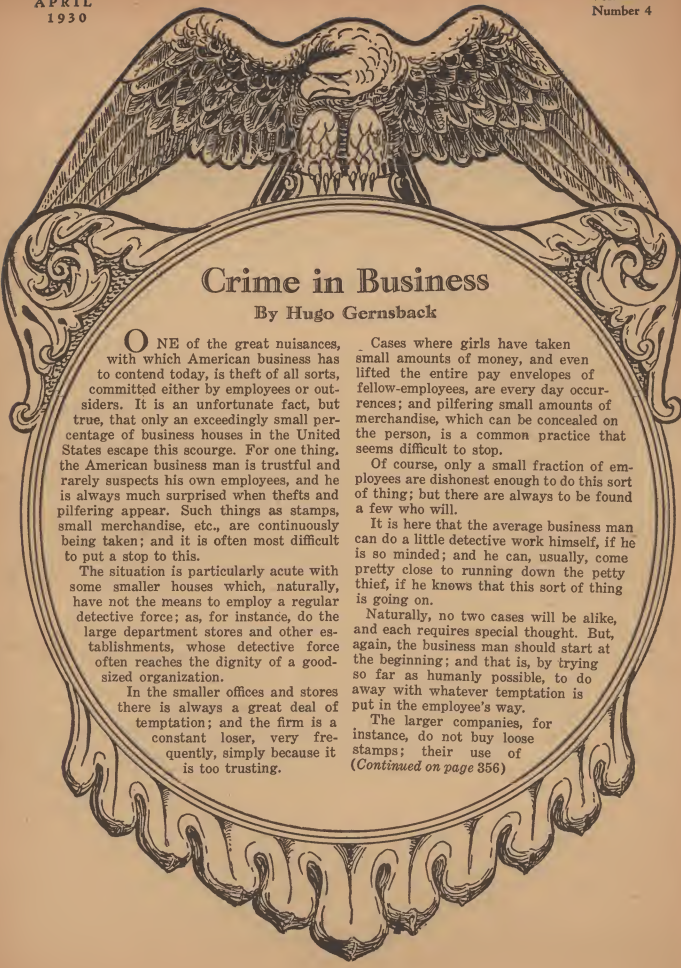
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Crime in Business

By Hugo Gernsback

ONE of the great nuisances, with which American business has to contend today, is theft of all sorts, committed either by employees or outsiders. It is an unfortunate fact, but true, that only an exceedingly small percentage of business houses in the United States escape this scourge. For one thing, the American business man is trustful and rarely suspects his own employees, and he is always much surprised when thefts and pilfering appear. Such things as stamps, small merchandise, etc., are continuously being taken; and it is often most difficult to put a stop to this.

The situation is particularly acute with some smaller houses which, naturally, have not the means to employ a regular detective force; as, for instance, do the large department stores and other establishments, whose detective force often reaches the dignity of a good-sized organization.

In the smaller offices and stores there is always a great deal of temptation; and the firm is a constant loser, very frequently, simply because it is too trusting.

Cases where girls have taken small amounts of money, and even lifted the entire pay envelopes of fellow-employees, are every day occurrences; and pilfering small amounts of merchandise, which can be concealed on the person, is a common practice that seems difficult to stop.

Of course, only a small fraction of employees are dishonest enough to do this sort of thing; but there are always to be found a few who will.

It is here that the average business man can do a little detective work himself, if he is so minded; and he can, usually, come pretty close to running down the petty thief, if he knows that this sort of thing is going on.

Naturally, no two cases will be alike, and each requires special thought. But, again, the business man should start at the beginning; and that is, by trying so far as humanly possible, to do away with whatever temptation is put in the employee's way.

The larger companies, for instance, do not buy loose stamps; their use of

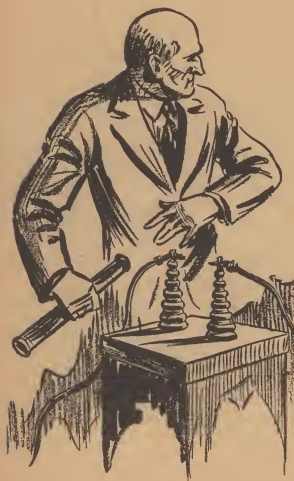
(Continued on page 356)

The adaptations of high-frequency currents to criminal purposes are almost too numerous to tabulate. Those who are acquainted with the theories and research work of that early scientist, Nikola Tesla, will find this story of absorbing interest.

The TERROR in the AIR

Illustrated
By
WINTER

By ARTHUR B.
REEVE



CRAIG KENNEDY works on a mystery in which two recent scientific discoveries are involved. One is the application of the physical principles of the gyroscope to bodies traveling through an unstable medium—water or air; and the other we will leave a secret for our readers to discover at the end of the story.

Of course everyone knows that great ships are now being fitted with gigantic gyroscopes which counteract the rolling motion of the boat. Can this instrument be applied to airplanes? Our famous author deals with this question in a very clever way, and at the same time tells us of a terrible danger which might threaten the lives of either air pilots in war-time, or peaceful mail-planes traveling over the continent with valuable cargo.



ARTHUR B. REEVE

"Yes, I know that," rejoined Kennedy; "but, Walter, have you noticed that all these accidents have happened to Norton's new gyroscope machines?"

"Well, what of that?" I replied. "Isn't it just barely possible that Norton is on the wrong track in applying the gyroscope to an airplane? I can't say I know much about either the gyroscope or the airplane, but from what I hear

the fellows at the office say it would seem to me that the gyroscope is a pretty good thing to keep off an airplane, not to put on it."

"Why?" asked Kennedy blandly.

"Well, it seems to me, from what the experts say, that anything which tends to keep your machine in one position is just what you don't want in an airplane. What surprises them, they say, is that the thing seems to work so well up to a certain point—that the accidents don't happen sooner. Why, our man on the aviation field tells me that when that poor fellow Browne was killed he had all but suc-

"THERE'S something queer about these airplane accidents at Belmore Park," mused Kennedy, one evening, as his eye caught a big headline in the last edition of the *Star*, which I had brought up-town with me.

"Queer?" I echoed. "Unfortunate, terrible, but hardly queer. Why, it is a common saying among the stunt aviators that if they keep at it long enough they will all lose their lives."

Why should Norton put a sheet-lead cover over the battery and dynamo on his plane? Was it to ward off death?



The rest of us shrank back in momentary fear of the gigantic forces of nature which seemed let loose in the room.

have won the Brooks Prize for perfect motionlessness in one place. And then Herrick, the day before, was going about 200 miles an hour when he collapsed. They said it was heart failure. But tonight another expert says in the *Star*—here, I'll read it: "The real cause was carbonic-acid-gas poisoning due to the pressure on the mouth from driving fast through the air, and the consequent inability to expel the poisoned air which had been breathed. Air

ceeded in bringing his machine to a dead stop in the air. In other words, he would

once breathed is practically carbonic-acid-gas. When one is passing rapidly through the air this carbonic-acid-gas is pushed back into the lungs, and only a little can get away because of the rush of air pressure into the mouth. So it is rebreathed, and the result is gradual carbonic-acid poisoning, which produces a kind of narcotic sleep."

"Then it wasn't the gyroscope in that case?" said Kennedy with a rising inflection.

"No," I admitted reluctantly, "perhaps not." I could see that I had been rash in talking so long. Kennedy had only been sounding me to see what the newspapers thought of it. His next remark was characteristic.

"Norton has asked me to look into the thing," he said quietly. "If his invention is a failure, he is a ruined man. All his money is in it, he is suing a man for infringing on his patent, and he is liable for damages to the heirs, according to his agreement with Browne and Herrick. I have known Norton some time; in fact, he worked out his ideas at the university physical laboratory. I have flown in his machine, and it is the most marvellous biplane I ever saw. Walter, I want you to get a Belmore Park assignment from the *Star* and go out to the aviation meet with me to-morrow. I'll take you on the field, around the machines—you can get enough local color to do a dozen *Star* specials later on. I may add that devising a flying-machine capable of remaining stationary in the air means a revolution that will relegate all other machines to the scrap-heap. From a military point of view it is the one thing necessary to make the airplane the superior in every respect to the dirigible."

The regular contests did not begin until the afternoon, but Kennedy and I decided to make a day of it, and early the next morning we were speeding out to the park where the flights were being held.

We found Charles Norton, the inventor, anxiously at work with his mechanics in the big temporary shed that had been accorded him, and was dignified with the name of hangar.

\$25,000 to Win

"I KNEW you would come, Professor," he exclaimed, running forward to meet us.

"Of course," echoed Kennedy. "I'm too much interested in this invention of yours not to help you, Norton. You know what I've always thought of it—I've told you often that it is the most important advance since the original discovery by the Wrights that the airplane could be balanced by warping the planes."

"I'm just fixing up my third machine," said Norton. "If anything happens to it, I shall lose the prize, at least as far as this meet is concerned, for I don't believe I shall get my fourth and newest model from the makers in time. Anyhow, if I did I couldn't pay for it—I am ruined, if I don't win that twenty-five-thousand-dollar Brooks Prize. And, besides, a couple of army men are coming to inspect my airplane and report to the War Department on it. I'd have stood a good chance of selling it, I think, if my flights here had been like the trials you saw. But, Kennedy," he added, and his face was drawn and tragic, "I'd drop the whole thing if I didn't know I was right. Two men dead—think of it. Why, even the newspapers are beginning to call me a cold, heartless, scientific crank to keep on. But I'll show them—this afternoon I'm going to fly myself. I'm not afraid to go anywhere I send my men. I'll die before I'll admit I'm beaten."

It was easy to see why Kennedy was fascinated by a man of Norton's type. Anyone would have been. It was not foolhardiness. It was dogged determination, faith in himself and in his own ability

to triumph over every obstacle.

We now slowly entered the shed where two men were working over Norton's biplane. One of the men was a Frenchman, Jaurette, who had worked with Farman, a silent, dark-browed, weather-beaten fellow with a sort of sullen politeness. The other man was an American, Roy Sinclair, a tall, lithe, wiry chap with a seamed and furrowed face and a loose-jointed but very deft manner which marked him a born bird-man. Norton's third aviator, Humphreys, who was not to fly that day, much to his relief, was reading a paper in the back of the shed.

We were introduced to him, and he seemed to be a very companionable sort of fellow, though not given to talking.

"Mr. Norton," he said, after the introduction, "there's quite an account of your injunction against Delanne in this paper. It doesn't seem to be very friendly," he added, indicating the article.

Norton read it and frowned. "Humph! I'll show them yet that my application of the gyroscope is patentable. Delanne will put me into 'interference' in the patent office, as the lawyers call it, will he? Well, I filed a 'caveat' over a year and a half ago. If I'm wrong, he's wrong, and all gyroscope patents are wrong, and if I'm right, by George, I'm first in the field. That's so, isn't it?" he appealed to Kennedy.

Kennedy shrugged his shoulders non-committally, as if he had never heard of the patent office or the gyroscope in his life. The men were listening, whether or not from loyalty I could not tell.

"Let us see your gyroplane, I mean aéroscope—whatever it is you call it," asked Kennedy.

Norton took the cue. "Now you newspaper men are the first that I've allowed in here," he said. "Can I trust your word of honor not to publish a line except such as I O.K. after you write it?"

We promised.

As Norton directed, the mechanics wheeled the airplane out on the field in front of the shed. No one was about.

"Now this is the gyroscope," began Norton, pointing out a thing encased in an aluminum sheath, which weighed, all told, perhaps fourteen or fifteen pounds. "You see, the gyroscope is really a flywheel mounted on gimbals and can turn on any of its axes so that it can assume any angle in space. When it's at rest like this you can turn it easily. But when set revolving it tends to persist always in the plane in which it was started rotating."

I took hold of it, and it did turn readily in any direction. I could feel the heavy little flywheel inside.

The Gyroscope

"THERE is a pretty high vacuum in that aluminum case," went on Norton. "There's very little friction on that account. The power to rotate the electro-magnetic flywheel is obtained from this little dynamo here, run by the gas-engine which also turns the propellers of the airplane."

"But suppose the engine stops, how about the

gyroscope?" I asked sceptically.

"It will go right on for several minutes. You know, the Brennan monorail car will stand up some time after the power is shut off. And I carry a storage-battery that will run it for some time, too. That's all been guarded against."

Jaurette cranked the engine, a seven-cylindere affair, with the cylinders sticking out like the spokes of a wheel without a rim. The propellers turned so fast that I could not see the blades—turned with that strong, steady, fierce droning buzz that can be heard a long distance and which is a thrilling sound to hear. Norton reached over and attached the little dynamo, at the same time setting the gyroscope at its proper angle and starting it.

"This is the mechanical brain of my new flier," he remarked, patting the aluminum case lovingly. "You can look in through this little window in the case and see the flywheel inside revolving—ten thousand revolutions a minute. Press down on the gyroscope," he shouted to me.

As I placed both hands on the case of the apparently frail little instrument, he added, "You remember how easily you moved it just a moment ago."

I pressed down with all my might. Then I literally raised myself off my feet, and my whole weight was on the gyroscope. That uncanny little instrument seemed to resent—yes, that's the word, resent—my touch. It was almost human in the resentment, too. Far from yielding to me, it actually rose on the side I was pressing down!

The men who were watching me laughed at the puzzled look on my face.

I took my hands off, and the gyroscope leisurely and nonchalantly went back to its original position.

"That's the property we use, applied to the rudder and the ailerons—those flat planes between the large main planes. That gives automatic stability to the machine," continued Norton. "I'm not going to explain how it is done—it is in the combination of various parts that I have discovered the basic principle, and I'm not going to talk about it till the thing is settled by the courts. But it is there, and the court will see it, and I'll prove that Delanne is a fraud—a fraud when he says that my combination isn't patentable and isn't practicable even at that! The truth is that his device as it stands isn't practicable, and, besides, if he makes it so, it infringes on mine. Would you like to take a flight with me?"

I looked at Kennedy, and a vision of the wreckage of the two previous accidents, as the *Star* photographer had snapped them, flashed across my mind. But Kennedy was too quick for me.

"Yes," he answered. "A short flight. No stunts."

We took our seats by Norton, I, at least, with some misgiving. Gently the machine rose into the air. The sensation was delightful. The fresh air of the morning came with a stinging rush to my

face. Below I could see the earth sweeping past as if it were a moving-picture film. Above the continuous roar of the engine and propeller Norton indicated to Kennedy the automatic balancing of the gyroscope as it bent the ailerons.

"Could you fly in this machine without the gyroscope at all?" yelled Kennedy. The noise was deafening, conversation almost impossible. Though sitting side by side he had to repeat his remark twice to Norton.

"Yes," called back Norton. Reaching back of him, he pointed out the way to detach the gyroscope and put a sort of brake on it that stopped its revolutions almost instantly. "It's a ticklish job to change in the air," he shouted. "It can be done, but it's safer to land and do it."

The flight was soon over, and we stood admiring the machine while Norton expatiated on the compactness of his little dynamo.

"What have you done with the wrecks of the other machines?" inquired Kennedy at length.

"They are stored in a shed down near the railroad station. They are just a mass of junk, though there are some parts that I can use, so I'll ship them back to the factory."

"Might I have a look at them?"

"Surely. I'll give you the key. Sorry I can't go myself, but I want to be sure everything is all right for my flight this afternoon."

It was a long walk over to the shed near the station, and, together with our examination of the wrecked machines, it took us the rest of the morning. Craig carefully turned over the wreckage. It seemed a hopeless quest to me, but I fancied that to him it merely presented new problems for his deductive and scientific mind.

A Strange Accident

"THESE gyroscopes are out of business for good," he remarked as he glanced at the dented and battered aluminum cases. "But there doesn't seem to be anything wrong with them except what would naturally happen in such accidents."

For my part I felt a sort of awe at the mass of wreckage in which Browne and Herrick had been killed. It was to me more than a tangled mass of wires and splinters. Two human lives had been snuffed out in it.

"The engines are a mass of scrap; see how the cylinders are bent and twisted," remarked Kennedy with great interest. "The gasoline-tank is intact, but dented out of shape. No explosion there. And look at this dynamo. Why, the wires in it are actually fused together. The insulation has been completely burned off. I wonder what could have caused that?"

Kennedy continued to regard the tangled mass thoughtfully for some time, then locked the door, and we strolled back to the grand stand on our side of the field. Already the crowd had begun to

collect. Across the field we could see the various machines in front of their hangars with the men working on them. The buzz of the engines was wafted across by the light summer breeze as if a thousand cicadas had broken loose to predict warm weather.

Two machines were already in flight, a little yellow *Eaglerock*, scurrying around close to the earth like a frightened hen, and a *Curtiss*, high overhead, making slow and graceful turns like a huge bird.

Kennedy and I stopped before the little wireless telegraph station of the signal corps in front of the grand stand and watched the operator working over his instruments.

"There it is again," muttered the operator angrily.

"What's the matter?" asked Kennedy. "Amateurs interfering with you?"

The man nodded a reply, shaking his head with the telephone-like receiver, viciously. He continued to adjust his apparatus.

"Confound it!" he exclaimed. "Yes, that fellow has been jamming me for the past two days off and on, every time I get ready to send or receive a message. Williams is going up with a Wright machine equipped with radio apparatus in a minute, and this fellow won't get out of the way. By Jove, though, those are powerful impulses of his. Hear that crackling? I've never been interfered with so in my experience. Touch that screen door with your knife."

Kennedy did so, and elicited large sparks with quite a tingle of a shock.

"Yesterday and the day before it was so bad we had to give up attempting to communicate with Williams," continued the operator. "It was worse than trying to work in a thunder-shower. That's the time we get our troubles, when the air is overcharged with electricity, as it is now."

"That's interesting," remarked Kennedy.

"Interesting?" flashed back the operator, angrily noting the condition in his "log book." "Maybe it is, but I call it darned mean. It's almost like trying to work in a power station."

"Indeed?" queried Kennedy. "I beg your pardon—I was only looking at it from the purely scientific point of view. Who is it, do you suppose?"

"How do I know? Some amateur, I guess. No professional would butt in this way."

Kennedy took a leaf out of his note-book and wrote a short message which he gave to a boy to deliver to Norton.

"Detach your gyroscope and dynamo," it read. "Leave them in the hangar. Fly without them this afternoon, and see what happens. No use to try for the prize to-day. Kennedy."

We sauntered out on the open part of the field, back of the fence and to the side of the stands, and watched the fliers for a few moments. Three were in the air now, and I could see Norton and his men getting ready.

The boy with the message was going rapidly

across the field. Kennedy was impatiently watching him. It was too far off to see just what they were doing, but as Norton seemed to get down out of his seat in the airplane when the boy arrived, and it was wheeled back into the shed, I gathered that he was detaching the gyroscope, and was going to make the flight without it, as Kennedy had requested.

In a few minutes it was again wheeled out. The crowd, which had been waiting especially to see Norton, applauded.

"Come, Walter," exclaimed Kennedy, "let's go up there on the roof of the stand where we can see better. There's a platform and railing, I see."

His pass allowed him to go anywhere on the field, so in a few minutes we were up on the roof.

A Suspicious Incident

IT was a fascinating vantage-point, and I was so deeply engrossed between watching the crowd below, the bird-men in the air, and the machines waiting across the field that I totally neglected to notice what Kennedy was doing. When I did, I saw that he had deliberately turned his back on the aviation field, and was anxiously scanning the country back of us.

"What are you looking for?" I asked. "Turn around. I think Norton is just about to fly."

"Watch him then," answered Craig. "Tell me when he gets in the air."

Just then Norton's airplane rose gently from the field. A wild shout of applause came from the people below us, at the heroism of the man who dared to fly this new and apparently fated machine. It was succeeded by a breathless, deathly calm, as if after the first burst of enthusiasm the crowd had suddenly realized the danger of the intrepid aviator. Would Norton add a third to the fatalities of the meet?

Suddenly Kennedy jerked my arm. "Walter, look over there across the road back of us—at the old weather-beaten barn. I mean the one next to that yellow house. What do you see?"

"Nothing, except that on the peak of the roof there is a pole that looks like the short stub of a small radio mast. I should say there was a boy connected with that barn, some radio amateur, no doubt."

"Maybe," said Kennedy. "But is that all you see? Look up in the little window of the gable, the one with the closed shutter."

I looked carefully. "It seems to me that I saw a gleam of something bright at the top of the shutter, Craig," I ventured. "A spark or a flash."

"It must be a bright spark, for the sun is shining brightly," mused Craig.

"Oh, maybe it's the small boy with a looking-glass. I can remember when I used to get behind such a window and shine a glass into the darkened room of my neighbors across the street."

I had really said that half in railleury, for I was at

(Continued on page 357)

How Good a DETECTIVE Are YOU?

*Here is your
chance to
sharpen your
senses.*

A monthly detective course of tremendous interest that can be played by anyone.

Amateur detectives who have followed this new and entertaining series of actual university and detective tests, will welcome our fourth number, which deals with a new type of crime.

As you see by the picture below, something has happened in the room of a private house. The same qualities which enabled you to answer the questions about the crimes illustrated in our last three issues, will help you in this one. For the benefit of new readers we reiterate that these tests, published every month in *SCANDINAVIAN DETECTIVE MONTHLY*, are exactly similar to those used in selection of detectives, and in the criminological departments of universities. Before you proceed, be sure to read the following instructions:

The present test is technically called:—"MEMORY TEST: IMMEDIATE RECALL." Take out your watch and study the illustration for exactly two minutes. Try to take in and memorize every detail. Imagine that you have come

upon a scene similar to the one pictured below. Later on you are asked to testify as to what you saw. That is the test.

At the end of two minutes, turn to page 367, and answer the thirty-five questions entirely from memory.

Under no circumstances must you refer back to this page while answering the questions. When you have answered all you can, check your answers by referring to the picture.

If you answer the entire thirty-five questions correctly, your score will be 100, and you may be said to have great detecting abilities. If you can answer only half of the questions, the score will be only 50, etc.

You will find it a lot of fun and amusement to test members of your family and your friends by means of this scientific test, and you will be astonished at the wide variations of the abilities of people to score in this most absorbing game.

Illustrated by
Pearson



The INVISIBLE MASTER

By
EDMOND
HAMILTON

IF you were to ask us which, in our opinion, is the greatest scientific detective story of the year, we certainly would pronounce the present story to be that unusual gem.

Here is a story that will keep you fascinated, not only in connection with its excellence of science, understandable by everyone, but by the fast-moving action for which this well-known author is famous.

Invisibility in this sort of story is perhaps not a new idea; but we venture to say that no one can foretell the O. Henry-like ending, which is as unexpected as it is dramatic.

Author of
The Hidden World
Cities in the Air, etc.

Illustrated
By
RUGER



A thousand alarms are pouring into Police Headquarters! The Invisible Master broods over the city! Who is He? We defy any reader to guess the secret!

CHAPTER I
Carton Earns His Salary



"AND to think," Charlie Carton exclaimed, "that they pay you a city editor's salary for ideas like that!"

The other looked up from his desk, nettled. "I didn't say I took any stock in the thing, Carton," he pointed out. "But

I got the tip that the *Courier* and the *Sphere* have their men hurrying out to the university, and we can't afford to miss anything."

"And I'm to write a breath-holding tale of how Dr. Howard Grantham, the super-physicist, has discovered the secret of invisibility?" demanded Carton.

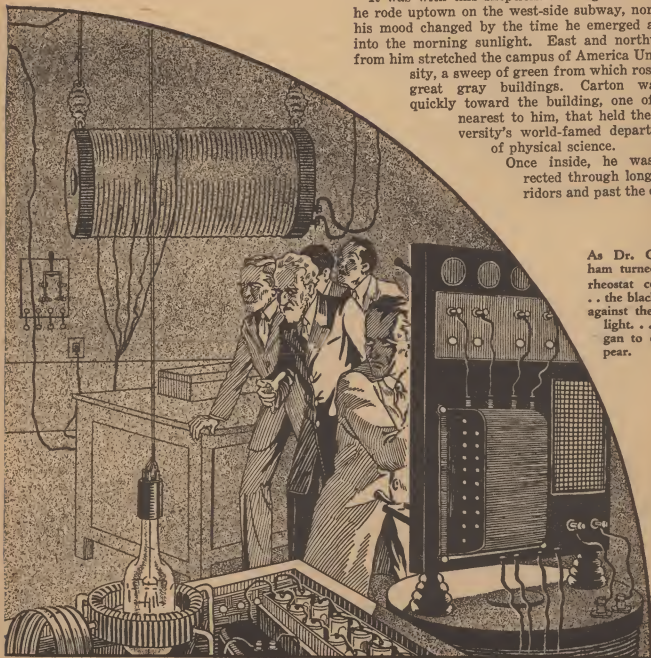
The city editor smiled. "Write it any way you please," he said, turning to the papers on his desk. "But whatever you get out of it, see that the *Courier* and *Sphere* men don't get more!"

"I'll get out of it some pointers on the methods of publicity-crazy scientists, if nothing else," was Carton's parting shot.

It was with this skepticism strong in him that he rode uptown on the west-side subway, nor had his mood changed by the time he emerged again into the morning sunlight. East and northward from him stretched the campus of America University, a sweep of green from which rose the great gray buildings. Carton walked quickly toward the building, one of the nearest to him, that held the university's world-famed department of physical science.

Once inside, he was directed through long corridors and past the doors

As Dr. Grantham turned the rheostat control . . . the black disc against the sunlight . . . began to disappear.



Even the editorial staff of SCIENTIFIC DETECTIVE MONTHLY was astounded at the conclusion of this scientific yarn. Write and tell us if you were able to foretell the ending.

of laboratories filled with gleaming apparatus and intent students, until he reached the door he sought. When he pushed it open he walked into a small ante-room in which two men of his own age and unshowy appearance were lounging and smoking. They greeted him with calls of joy.

"Carton, you're not stuck with this yarn too?" one asked. "You'll be graduating to the Sunday supplements if you keep on."

"I can see the *Inquirer's* headlines tonight," chaffed the other. "Noted scientist makes amazing discovery——"

"Where is our noted scientist?" asked Carton of Burns, the *Courier's* man.

"Dr. Grantham is even now engaged upon the tremendous work which he will presently reveal to the eager press," said the other. "In other words, he and that sour-faced assistant of his, Gray, are cooking up something to get page-one space."

"I don't know about that, Burns, at that," put in the third reflectively. "Dr. Grantham's got a great rep among the science boys, and he's never been any space-hound."

"Well, why his announcement of this stuff, then?" demanded Carton. "Claiming to be able to make matter invisible at will—rot! It's just the old cancer-cure dodge the ambitious medics use, worked out in a different way."

"Perhaps so," said the other, "but—"

He was interrupted by the entrance of a man from the room beyond, at sight of whom Carton found himself revising some of his conceptions. Dr. Howard Grantham was a man of over middle age, big and of average appearance with his graying hair and clean-shaven face, but with very unaverage eyes, gray and strong and steady. When he spoke his voice seemed to hold a calm and contained power.

Powers of Invisibility

"I APOLOGIZE for keeping you waiting, gentlemen," he told them, "but you will appreciate that a demonstration of my discovery at this stage is somewhat difficult. However, Gray and I think we can give you an idea, at least, of the thing."

"You mean you're going to make some matter invisible before us?" Carton asked incredulously, and as the scientist turned toward him, added quickly, "I'm Carton—of the *Inquirer*."

Dr. Grantham bowed. "Yes," he said quietly, "we think we can give you a demonstration of it on a small scale. Will you step this way, gentlemen?"

As Carton passed after the physicist with his two companions into the room beyond, he felt his skepticism fading still farther. It was apparently Dr. Grantham's private laboratory into which they were ushered. Beside a table in it there awaited them a dark young man of thirty or so, with quick black probing eyes. When introduced to the re-

porters as Gray, Dr. Grantham's assistant, he gave them but a curt nod.

The room seemed full of physical apparatus for the most part of outlandish appearance to Carton, he and his two fellow-journalists looking alertly around them. Upon the table before them, just inside the casement through which the brilliant sunlight was streaming, rested a squat cabinet of black metal, but inches square, with a small metal framework on it and with connections to what seemed small batteries and a row of three switches.

Dr. Grantham was drawing their attention to this when the door behind them opened and another entered, an impeccably-dressed older man whose white head and genial countenance the reporters recognized instantly as that of Dr. Calvin Ellsworth, America University's very prominent president. He waved Grantham back as the latter turned toward him.

"Don't let me interrupt, Grantham," he adjured him. "I just wanted to be a spectator like the rest."

Dr. Grantham nodded in understanding, and turned back to the reporters.

"To describe understandingly what I am going to show you," he told them, "you must understand something of the principle involved in this. I can make invisible, and that may seem a strange thing to many, who have not ever stepped to wonder just why matter is visible at all."

"Why is it, then? Why do we see a house? We see it for two reasons, its obstruction and reflection of light. The light rays come to us from all around it, but not from behind the house because they are stopped by it. The house, then, is an area of comparative darkness to us, and so is outlined against the light. Also light is reflected from all sides upon it and to our eyes."

"But suppose that the light-rays behind, instead of being stopped by the house, curved round it? Then we would see what was behind the house, with ease, and the house itself would be quite invisible to us, granted that light striking it from all sides did not really strike it but curved around it. Then if I want to make a house, or a tree, or a stone, invisible, all I need to do is to deflect the light-rays around it in such a way that they will curve around and avoid it instead of ever striking it."

"Can that be done? In principle, it has been possible for years, for years ago we learned that light does not always travel in straight lines but can be deflected to one side or another by certain forces. Einstein's discoveries showed that, it being photographically confirmed after his theory that the light-rays of stars curve in toward the sun in passing it in space. If there is a force that will attract light-rays and make them curve in toward an object, why not a force that will repel the light-rays and make them curve outward to avoid an object?"

Sought for Years

"IT is that force which for years I have sought and which I have finally found. It is an electromagnetic force which repels light-rays and by curving them around the zone of force can make all matter in that zone invisible. Understand, it does not blot out light in any way, it simply makes the light-rays detour around an object and so makes that object invisible."

"So much for theory. I have here a small cabinet of black metal in which is an apparatus for projecting this force upward for a few inches. Any small object placed on top of the cabinet will become invisible when the force from within is put into operation. If the force were more powerful, and radiated out in every direction instead of upward only, the cabinet itself and all around it would be made invisible."

Dr. Grantham cast a quick glance around and then picked from the table a small disk-shaped paper-weight of black, opaque glass.

"I shall endeavor to make this paper-weight invisible to your eyes—by placing it on the cabinet and using the force within to bend the light-rays around it."

He was turning with it to the little cabinet when Carton reached forth a hand.

"May I look at the thing first?" he asked.

Dr. Grantham handed it to him, smiling. "Of course, and I trust you'll find nothing faked about it."

The three reporters examined it closely, as did with evident interest President Ellsworth. It was quite obviously no more than a disk of the black glass used for paperweights and inkstands. When they handed it back to Dr. Grantham he leaned forward and placed it upright in the little metal framework on the cabinet's top. It stood out there against the brilliant sunlight streaming through the window just behind it, a dead-black disk against that brilliant light.

Dr. Grantham turned to the assistant. "All ready, Gray?" he queried, and the other nodded briefly.

"Everything on it set," he said. "The batteries are on."

"Please watch very closely," the physicist told those behind him. "These tests are rather hard to arrange, and I don't want you to have any doubts."

He pressed one of the switches beneath his hands, and from the cabinet came a thin, almost inaudible whining. The three reporters and President Ellsworth were watching spellbound. A half-dozen feet before them the black disk of the paper-weight lay as dark as ever against the sunlight streaming in. But as Dr. Grantham slowly turned a small rheostat control they all uttered something like a sigh. The black disk against the sunlight was becoming translucent, transparent. It was disappearing!

Dr. Grantham's hand still moved on the rheostat

handle and as the thin whine from the cabinet came louder they saw that the disk was but a mere ghost-like shape against the sunlight, and then that too had vanished. The paper-weight was invisible! They gazed silently, fascinated, and then as Grantham moved back the control in his hand the shadowy circle of the disk appeared again, it grew quickly more opaque, and as the switch clicked and the cabinet's whine ceased it rested there as black and opaque and visible as ever!

Dr. Grantham leaned and grasped it, handed it to the four. Wonderingly they passed it from hand to hand, seeing it the same as before, quite black and commonplace and visible. Carton, himself oddly stirred by what he had seen, heard Burns' exclamation from beside him.

"Good Lord! What a story!"

"And you can do that to anything?" Carton demanded of the physicist.

The Invisible Man

DR. Grantham nodded. "To any matter. Gray and I are now finishing a cabinet-projector that will be of sufficient power to make invisible itself and all for a few feet around it. With it a man would be perfectly invisible."

"An invisible man?" President Ellsworth was looking at the scientist keenly. "My dear Grantham—do you mean it would make a man as invisible as that paperweight?"

The physicist calmly nodded. "Just that, and if he had the cabinet and its compact batteries attached to him he could move at will invisibly."

"But the possibilities of that are rather appalling," said President Ellsworth, his brows knit. "Do you realize that if some criminal were to get hold of the thing, he could—"

"No criminal is going to hear of that part of it, even," Grantham told him reassuringly. "I know that you, gentlemen, will at my request confine your accounts to the principle of the discovery and to my demonstration without hinting of its possibilities on a larger scale."

Already the reporters were at the door, but Carton turned back. "You wouldn't mind if I'd take that paperweight with me?" he asked, somewhat apologetically. "Of course I know it's all square but editors are such a skeptical crew—"

"Of course not," the physicist said, handing it to him. "Any valid scientific discovery will stand all the investigations of it that can be conceived. I only trust that you'll restrain your imaginations as much as possible in your descriptions."

A half-hour later Carton was pouring out an excited tale to the city editor of the *Inquirer*, who heard him with calm, lighting a cigar. When he had tossed away the match, he looked up.

"It all boils down, then," he commented, "to the fact that Dr. Grantham has made a claim and then put on some hocus-pocus up there to convince you of it."

"Hocus-pocus nothing!" exclaimed Carton heatedly. "I tell you I was as skeptical as you about it until he did the thing before our eyes, made this paperweight disappear!"

The editor scratched his chin reflectively. "Well, it can have a column on page one," he said, "but remember to keep the responsibility on Dr. Grantham. I'm not going to have this paper mixed up in a silly hoax."

"The biggest story to break in years and you call it a hoax!" Carton said bitterly. "If the building was burning down around you, you'd wait for a statement from the fire department before you'd run the story."

"Well, that would be better than retracting the story the next day," the other rejoined. "These scientists have brainstorm regularly, Carton, and this discovery of Grantham's is one if I ever saw one."

It was in that frame of mind, Carton perceived when his story appeared that afternoon, that it was read by most. The thing was accorded very considerable space by most of the metropolitan newspapers, but all of them were one with the *Inquirer* in presenting Dr. Grantham's claim and describing his demonstration of it without taking any responsibility as to its truth. Too many times in the past had the newspapers been duped by clever scientific hoaxes.

All had more or less accurate statements of Dr. Grantham's principle of light-bending as a means of invisibility, and some had additional statements from noted physicists and astro-physicists. These, respectful for the most part of Dr. Grantham's huge reputation, ventured no criticism or support of his theory, but corroborated his statements as to the curving of light-rays in passing the sun. It was assumed by all of them, and by the greater part of those who read the articles, that even if true Dr. Grantham's discovery was a mere laboratory triumph without possibility of any practical application.

Carton saw, with some exasperation, that the thing was being treated only as another of the lurid pseudo-scientific sensations which had long ceased to astound the public. Dr. Grantham himself had made no statements other than to affirm quietly the fact of his discovery, and Carton would have given much to have been able to spring the sensation of the physicist's larger projector that would make a man invisible. Without it, he saw, the thing as a news sensation was doomed to wither and die quickly. But in this, for once, he was wrong.

For a few hours before the next morning his phone jangled and when he answered sleepily the voice of the *Inquirer's* night-editor jolted him to attention.

"Carton? You handled that Grantham thing yesterday, didn't you? Then pile out to America at once—Dr. Grantham's been attacked by some-

one there, and there's a rumor of an invisibility apparatus of his being stolen!"

CHAPTER II

The Machine

WHEN Carton hurried a little later for the second time down the long hall of the physics building of America University, his steps were quickened by the sight of a little knot of men outside the door of the rooms he had visited on the preceding day. There was Burns, his fellow-reporter of the *Courier*, two blue-clad policemen, and another man in plain clothes. All turned as he approached.

"Carton here saw it the same as I!" Burns was declaring. "He can tell you, Sergeant Wade!"

The detective-sergeant turned toward Carton, greeting him with a nod. He was familiar to the reporter, a sleepy-eyed, soft-moving man who chewed gum unceasingly and slowly.

"What is it I'm supposed to have seen?" Carton demanded. "And where's Dr. Grantham? And what's happened?"

"One thing at a time, Carton," soothed the sergeant. "Dr. Grantham's had a nasty crack on the head, and a doctor's in there fixing him up. In the meantime Burns here has been telling me a story about this Grantham making something invisible here yesterday with some machine?"

"Don't you read the papers, Wade?" Carton asked. "If you did, you'd have read last night that Dr. Grantham did just that."

"I never read what you fellows write," the detective assured him. "And I think I'll do so even less from now on. Making things invisible—you two haven't had any cracks on the head, have you?"

"Laugh on, ignorance," Carton told him as the other smiled slowly. "You're the sap, Wade, not to believe it. Grantham pulled the thing not only in front of three of us but also in front of President Ellsworth of the university himself."

"President Ellsworth, eh?" queried Wade keenly. "Same that's in there with Grantham now."

"In there?" they both asked, and the detective nodded. "Yes, it seems he was the one that found Grantham. And you say he saw this stunt pulled the same as you?"

He seemed to consider that. Carton was about to riddle him with questions when the door opened and an elderly man beckoned them inside. Carton and Burns slipped in with Sergeant Wade, and found Grantham leaning back in a chair with a thick bandage round his head, his eyes half-closed, and President Ellsworth bending anxiously over him. The doctor who beckoned them turned to the detective.

"Simple enough," he stated, "a blow on the skull with something blunt, more from the side than from behind. He says he was turning when it came—it probably saved him from concussion."

Who Did It?

WADE nodded quickly, and as the doctor passed out moved over to the seated scientist, Carton and Burns close behind him.

"Feeling better?" he asked. "Just take your time, Dr. Grantham—but we'd like to hear something about it."

"There's nothing to tell," said Grantham, spreading his hands helplessly. "Gray—that's my assistant—and I, had been working almost all day yesterday on a cabinet-projector of the light-curving force. We finished it after midnight, and then gave it its first tests on ourselves. It worked perfectly, as I had been sure it would, giving complete invisibility for either of us when the cabinet was strapped to his back."

"Just a moment," interrupted the detective. "Do you mean that this machine really made you or your assistant quite invisible?"

"Of course," the physicist said, with some wonder. "It was simply a larger development of the small projector we showed these reporters yesterday morning. When Gray wore it and turned it on he was absolutely invisible to me, and it was the same when I tested it. We were both very tired by then, and I told Gray he could go. When he had gone I was starting to lock up the projector for safe-keeping, when I heard a quick step behind me. I turned but was half-around when a crashing blow descended on my head. As I lost consciousness I felt the cabinet-projector being torn out of my hands, and then I knew nothing more until I awoke an hour ago with President Ellsworth bending over me."

Wade shifted his gum thoughtfully. "And you, sir?" to Ellsworth.

"I'm afraid I can tell you even less," said the President. "I knew Grantham was working late last night and wanted to see him. It must have been about three o'clock that I came in, and found him lying on the floor stunned. I called the doctor first, and then the police."

"You saw no one leaving when you entered?"

"No one."

"But isn't three in the morning a rather unusual time for you to visit your professors?" Wade asked.

President Ellsworth seemed somewhat perturbed at the question, glancing toward Grantham and then back to the detective. "My reason was a private one, but I have no objection to telling you of it. The fact is that I had become worried over this experiment or theory of Grantham's during the evening. While perfectly aware of his integrity, I realized that this work of his had a touch of the sensational that might reflect upon our institution, and I wanted to ask him to go slowly with the thing until his work was beyond any chance of criticism."

"Natural enough," Wade commented. "And what of this Gray? You said it was just after he left that you were struck from behind?"

"Yes, but that hardly makes him the criminal,"

said Grantham. "Gray has been absolutely devoted to this work of ours, and though somewhat silent and forbidding is quite reliable."

"You know where he lives?"

"Of course—not a thousand yards from here—in the rooming house diagonally opposite this corner of the campus."

Sergeant Wade turned to one of the blue-clad officers and spoke quickly to him. When the man had left he turned back to the physicist.

"This Gray, though, knew all about your projector just finished, something but a handful of people did. And since he had seen it make a man perfectly invisible, he must have been aware what powers its possession would give anyone who wanted to go in for criminal activities?"

"Anyone would have been aware of that," Dr. Grantham rejoined. "President Ellsworth remarked on it at our demonstration yesterday."

"You cannot say, however, that it is impossible that Gray, after leaving, crept back into the laboratory and struck you down and took the projector?" Wade pursued.

Gray Did Not Return

DR. GRANTHAM considered. "No," he said slowly, "but I would say that it sounds impossible to anyone who knew Gray."

Wade was silent, apparently revolving something in his mind, but before he could ask another question there entered the officer he had sent below, who spoke to him briefly in low tones. Then he had done, Wade turned again to the physicist.

"How is it, then, that Gray did not return to his rooms when he left here, and has not been seen there since he left yesterday morning."

"Good Lord!" Carton burst in excitedly. "Then it's Gray that—"

Dr. Grantham's face showed his astonishment and trouble. "Gray was not a criminal type," he persisted. "I simply cannot believe that it was he. More likely by far some thief who found the building's door open and who, seeing me about to lock up the projector, struck me down to get it."

"Well, Gray or another," Wade remarked, "someone is loose in New York at this moment with a thing which, if you're right, can give him the power to walk its streets unseen."

"But you'll endeavor to catch him?" President Ellsworth interposed anxiously. "I know but little about Grantham's mechanism, but surely it will be a terrible threat until whoever has it is captured?"

"We'll do what we can," Wade told him gloomily. "But it's going to be pretty hard to keep the force looking for someone they can't see! Even if they believe in the story at all. But I wouldn't worry about the thing, sir—visible or invisible, a crook can only keep free so long when thousands are concentrating on finding him."

"I sincerely hope you're right," said President Ellsworth as he turned to the door, hat in hand.

"I'll see you tomorrow about it, Grantham—and take care of yourself until then."

When he had gone Dr. Grantham said quietly, "I am glad that he does not fully realize the appalling nature of this thing. I did not want to worry him to no purpose. Whether it was Gray who took the projector or another, is really immaterial now. The fact, the great fact, is that someone has it who has proved himself ruthless. And with it, he can loose such a terror upon New York—yes and upon the nation—as might be utterly without precedent!"

"One man?" asked Wade, skeptically.

"One man—but an invisible one!" Grantham exclaimed. "Have you realized what this means? It means that there are no limits to this man's power, whoever he is. It means that he can strike down any he wishes though that person surround himself with a thousand body-guards. It means that there is no fortress or strong-room that can keep him out, nothing that he cannot take for himself in full light of day. He can be, if he desires, an invisible tyrant ruling the world with terror!"

Wade's face was graver as he turned with Grantham, and with Carton and Burns to the door.

"Well, the most we can hope for now is to get him before he can use the thing," he said. "Whether it's Gray or another, we ought to be able somehow to——"

He halted, and his hand shot forward to a little table just inside the door. On it rested a big square white envelope addressed in a bold hand to "Dr. Grantham."

Wade's countenance was impassive as he grasped it. "This wasn't here when President Ellsworth left," he said. "I saw him take his hat from that table. Is that Gray's handwriting?"

"That or a good imitation of it," said Grantham slowly.

Who Came In

THE detective turned to the two officers lounging outside the door. "Have you seen anyone come through this door since President Ellsworth left?" he asked them.

They shook their heads. "No one in or out since then."

Wade looked from Grantham to Carton and Burns for a moment, then handed the envelope to the former. The physicist tore it open and read silently the single sheet enclosed, then read aloud to the others.

My dear Dr. Grantham:

It has amused me very much to hear your conversation with these worthy officers, but I really must be going. (You really should offer chairs to your guests, whether visible or invisible). I am obliged to you for developing the projector which now makes me invisible, but I warn you that any attempt on your part

to regain it or to capture me will end disastrously for you. I am the Invisible Master, and I begin now my reign of this city. My rule of it will become evident to all in it soon, for in it from now onward my will shall be supreme.

The Invisible Master.

CHAPTER III

The Master Strikes

CARTON, two days later, came into the *Inquirer's* city room to find it a babel of excitement. His city-editor hailed him through it. "Carton! Get to the Vance National Bank double-quick—the Invisible Master's been there—a robbery!"

"A robbery!" Carton exclaimed. "Then he's struck!"

"Get there and get the dope—Collins and Jansen have already started and we're holding the presses for the story—get going!"

As Carton hurried into the street and through the throngs that surge each afternoon in the city's financial section, his excitement was high. From the crowds about him he heard cries and calls, and as he neared the giant building of the Vance National Bank on Broad Street, saw a dense crowd gathered at its doors, held back by a row of policemen. The news was spreading out over the city like flame. The Invisible Master had struck!

For two days the Invisible Master had been almost the single center of New York's interest. The newspapers had made known to all that Dr. Grantham had been struck down and his projector stolen, and that the criminal who had done that had had the audacity to venture back into the very room where he had attacked Grantham, made invisible by the projector, and to leave a mocking note for the scientist in the very presence of the police! And in that note the Invisible Master had promised to make use of his power of invisibility to make himself supreme in the great city!

The police had been nonplussed. They had searched far and wide for Gray, the assistant of Grantham whom all held to be the daring thief of the projector, but they had found no trace of him. But the public was interested only in the Invisible Master, whether he was Gray or another. Was there actually such a man as that walking New York's streets unseen? And if there was would he carry out his threat to make himself ruler of the city by his power?

Those had been questions of supreme interest in those two days. The newspapers carried pages concerning the Invisible Master and what he might do. He could steal, slay and burn with impunity. Nothing was safe from him, no treasure and no life. A thousand absurd methods were suggested for capturing him, but when nothing had been heard of him in the two days, a great part of the

city doubted his existence, despite Grantham's warnings. But there seemed few doubters now, Carton grimly told himself, as he fought his way through the crowd to the great bank's doors.

There his badge let him through the circle of sweating policemen who were holding back the excited crowds. He hurried on into the great bank's lobby. Blue-clad figures were stationed everywhere at its doors. The many cages along the marble and brass counters were empty of their occupants now, but in front of one cage was gathered a group of men. There were some of the bank's officials, elderly, anxious-looking men, two or three police officers among whom Carton recognized Sergeant Wade's sleepy-eyed and gum-chewing countenance, and, somewhat to his surprise, Dr. Grantham, whom he was later to learn had been summoned with the police at the robbery's occurrence.

Vanished Money

CARTON saw that the center of interest of the group of officials and police and reporters was a young, immaculately-dressed man whose face was flushed and who was ejaculating excitedly.

"It was he, I tell you!" he was exclaiming. "It couldn't have been anyone or anything else but the Invisible Master—the package vanished right before my eyes!"

"Who's the youngster?" Carton asked of one of the reporters beside him.

"Harkness, the teller," said the other. "He's claiming that a package of fifty one-thousand dollar bills vanished in front of his eyes, and it looks as though he's going to have a hard time convincing his bosses," added the other cynically.

Grantham was calming the excited young teller. "Let's just hear all about it," he told him. "We know that the thing's unprecedented, and no one thinks you took the money."

Harkness made an effort to appear calm. "It was just half an hour ago," he said. "I was arranging some entries in my sheets and the package was lying with some others beside me, just inside the grille's opening. It was really in reach from outside, of course, but there was no danger because everyone knows how impossible it is to snatch money in a bank and escape with it. I thought I heard someone step up to my window and looked up, but there was no one there. Then in a minute it happened—the whole front of the grille and counter seemed to vanish for a second and then reappear. But when they reappeared the package of thousand-dollar bills was gone! I could only stare, stupefied, for no one had been at the window, and then suddenly I remembered about the Invisible Master and gave a shout. The guards came running—but there was no one there by then. It was the Invisible Master—and he had gone! And it was he—I tell you it must have been!"

Harkness' calm broke down at the end of his

story, but Grantham encouraged him with a few words and then turned to Wade.

"The boy's telling the truth, Wade," he said simply. "It was the Invisible Master—and he's given us the first sample of what his being loose in this city means!"

The officials and reporters were silent, Wade thoughtful. "Would it be possible for him to make the whole front of the counter disappear for an instant like that?" he asked Grantham.

The physicist nodded. "Quite possible. You see, the projector when attached to the body, projects a force for a radius of a few feet around the body and makes all in that radius invisible as well as the person wearing it. Thus when the Invisible Master stepped close up to the window, it and everything in the projector's radius became invisible for a second, and in that second he needed only to grasp the package of bills and then step quickly back and walk out."

"It's a tough problem," Wade admitted. He and Grantham had stepped aside from the group, who were now sharply questioning Harkness, and Carton had followed them.

"But how are you going to deal with it?" Grantham demanded. "For all we know, Wade, the Invisible Master may be even now going through bank after bank. It's not a question of doing anything about this robbery so much as of preventing others."

"Well, I can't see anything to do but to follow our regular methods," Wade said slowly. "We'll send word out to the banks and stores to watch for this method of robbery as well as possible, and we'll put a man to look into Harkness and his story, and broadcast a list of the bills' numbers if we can get them."

When Fear Broods O'er Us

GRANTHAM shook his head impatiently. "Wade, these ordinary police methods of yours are utterly useless in a case like this. It's all right to gather fact after fact and slowly apprehend an ordinary criminal in that way, but this is not a case of catching a criminal so much as a case of war! War between this city and the Invisible Master! And the one hope of catching him lies in making the whole city realize that the Invisible Master is at large in it, and so put them on their guard against every unusual incident that may point his presence."

"It seems to me," Wade said dryly, "that when Carton here and his colleagues get through with this story there's going to be mighty few in the city who don't know that the Invisible Master's at large."

And by that night, indeed, all New York was aware through the screaming newspapers that the Invisible Master had begun his threatened activities. He had, apparently, deliberately chosen for his first exploit one most calculated to win for him-

welf the city's amazed attention, in his astounding robbery of the great bank in the full light of day. The thing was stupefying. It was the one subject of excited discussion in the city that night.

It was the Invisible Master's work, that was certain. But when would he strike again, when would he make another of these astounding coups? Imagination ran riot in the depiction of the things that the Invisible Master might do. People were warned to go always on the assumption that he was near, for caution's sake. Scientists and pseudo-scientists gave forth sensational interviews on how the Invisible Master might be caught.

The newspapers sought above all else for information from Dr. Grantham, the man who had unwittingly loosed the terror upon the city. It was announced late that day that Grantham was foregoing all other activities to devise a plan for curbing or capturing the Invisible Master. Some suggested even that he was making another projector with which one invisible man could hunt the other, forgetful of the fact that Dr. Grantham's first projector had been the work of months, as he admitted.

Carton, sent that night for information from Grantham, had evidence of the importance attached to him in the policemen at the door of the physics building, and knot of reporters lounging outside. They hailed him noisily and called after him when Carton, after sending his name in, was admitted inside.

He found Grantham in his laboratory's ante-room, with Sergeant Wade.

"Carton, I'm glad to see you," the scientist greeted him. "You were here with us last night when the Invisible Master came in and went out, and I'd like to hear what you think of a scheme that I've devised for combatting him."

"You've found a way to capture him?" Carton burst out.

Grantham shook his head. "No, but a way of curbing his activities, I think. Suppose that inside that bank he robbed today there had been a steel barrier, and that entrance to the bank was only through a turnstile like a subway turnstile. Then a guard standing beside it could watch it and if it turned with no one in sight he would know the Invisible Master had entered and could give the alarm. There could be entrance and exit turnstiles like that, and in stores and the like as well as banks. It would stop these snatch-robberies on the part of the Invisible Master, to some extent, at least."

"It sounds feasible," Carton admitted. "But it will slow business—do you think the banks will adopt it?"

"They will," Wade said shortly. "They're scared stiff down in the financial district over this Vance National robbery today, and they'll catch at any straw to keep the Invisible Master away from their vaults."

The Second Blow

"EVEN this, though," Grantham said broodingly, "won't completely stop the Invisible Master. The best it can do is to curb him for a time until we find some way of—"

He stopped as the phone-bell rang, and when he had answered, turned the receiver over to Wade. Carton saw the detective's sleepy eyes widen a trifle as he listened to the excited voice on the other end, though his jaws moved his gum as imperceptibly as ever. When he turned back to the other two they were waiting in breathless silence.

"Headquarters," he said simply. "Less than a half-hour ago the Invisible Master took forty thousand from the pay-office of the Etna Construction Company, up in the Bronx, and shot and killed one of the pay-clerks."

"Good God!" Grantham exclaimed. "And they're sure it was he?"

"No one else," said Wade laconically. "The office is a small wooden building on the construction lot. The two clerks, Taylor and Barsoff, had the money ready to pay out through a window in one side. There were three guards around the building, armed, and one of them saw the door fly suddenly inward and then heard the shot and scream from inside. They rushed to the office but when they got there Barsoff was dead, shot through the heart, and Taylor could only stammer that the door had flown open, the money had suddenly disappeared, and that Barsoff had been shot out of empty air when he had grasped after it. The guards and Taylor searched the lot and called the police instantly but they've found no trace of him."

"Lord!" Carton exclaimed. "The city will go crazy over this—the Invisible Master striking again on the same day!"

"It will go more than crazy," Wade commented grimly. "This is going to make everyone in this town handling money panic-stricken!"

"It is the start of the Invisible Master's rule!" said Grantham solemnly. "From now on no one in New York is safe from him! He is deliberately terrorizing the city, and at the same time enriching himself!"

The door opened and President Ellsworth burst inside, his ordinarily genial face twisted with emotion. "Grantham!" he exclaimed. "Have you heard of this latest outrage of this assistant of yours—the Invisible Master?"

Grantham nodded somberly. "We've just heard."

"But this is horrible!" Ellsworth cried. "To think that Gray, so quiet and sane to all appearances, should become this unseen thief and killer!"

"Why should Gray be so crazy after money, anyway?" Wade asked him. "They tell me he was a scientist rather than business type."

"I think I can understand it," President Ellsworth said. "Gray has long wanted funds for independent research—even he and Grantham here have been terribly hampered in their work by lack

of money. He has seen the millions that are spent each year in this city on luxury and pleasure, has reflected how much good might result to the human race were part of it applied to scientific research, and has started out with this weapon of invisibility to get it!"

"You sound almost as though you were in sympathy with him," Wade said.

"My dear sir!" Ellsworth was visibly shocked. "I may believe that a fraction of the city's riches would be better applied in research, but I would never condone the murder of helpless clerks to obtain it."

"I was only joking," Wade apologized. "Grantham and I think we have found a way to curb the Invisible Master's activities, at least."

"Indeed?" asked Ellsworth curiously.

"Yes." And Wade explained the idea of the turnstiles, which the President at once approved.

A City Terrified

"BUT it seems that will only limit his activities," he said. "Is there no chance of capturing him completely? Are you sure, Grantham, that the projector he stole might not suddenly cease to function and make him visible?"

"No chance of that," said Grantham hopelessly. "The batteries in its case are small but enough to keep it running for weeks, at intervals. And since it's Gray that took it, he'll know how to replace them."

President Ellsworth nodded. "I suppose so. But he'll have to be captured soon or the city will be in panic."

Grantham shook his head. "This second crime is enough to send it into panic, almost, without further aid, Ellsworth. And if the Invisible Master should strike again soon—"

And by morning, Carton saw, Grantham's words were nearly fulfilled already, since it was panic indeed that had almost settled upon the city. The newspapers were in a state approaching frenzy. The Invisible Master had struck again, had followed his daring daylight bank-robbery by another robbery and cold-blooded murder as terrible. He was abroad, he was invisible, and he was a killer!

A thousand alarms of the Invisible Master's presence were pouring into police headquarters from citizens who had heard inexplicable sounds or the like. The police sought to trace down some of these, but were near the limit of their efforts. They had broadcast photographs of Gray in case he should assume visibility at times, had endeavored to have a watch kept for the larger bills stolen, but more they could not do.

Through all that morning a chill of terror hung over New York, the pall of the Invisible Master's rule. Many stores and banks did not open on that morning. Others that did had hastily-devised turnstiles and like devices, and armed guards at every door. Crowds in streets and stores were at a mini-

mum. Every hour saw new panics as a cry went up that the Invisible Master was present. All New York, Carton saw, was waiting with nerves on the ragged edge to hear whether the dread unseen figure stalking the city's ways would strike again.

Then just at noon fear-mad voices were shouting and presses were roaring and newsboys were bawling as there came to the city the dread word it awaited—the news of the Invisible Master's third crime.

Even Carton blanched at the horror of that crime, for in it three men had gone to death. The three had been partners in the importing firm of Van Duyck, Jackson, Sunetti and Allen, with offices on lower Broadway. Upon that morning they had met to dissolve the partnership in question, there having been some strong differences between them on business policies. A large amount of cash and negotiable securities had been brought to their office for the purpose. According to Allen, the only one of the four to survive, they had been working out their accounts when in the morning's mail had come a brief letter signed by the Invisible Master.

He had said that the partners were to gather the sum of one hundred thousand dollars in cash and securities, place it in a suitcase, and appoint one of their number to sally forth along Broadway with it at the exact hour of eleven, when he, the Invisible Master, would take possession of it. Unless one went forth with it at that hour, he would enter and their lives would pay the forfeit.

Allen said that when the note was brought in by an excited secretary they had ignored its threat entirely and had gone on with their accounts, thinking the thing the work of joking friends, or a crude attempt to cash in on the dread the Invisible Master had stirred. They had forgotten its menace by the time the hour of eleven came. At that hour Van Duyck and Jackson and Sunetti had been seated on one side of a table with Allen on the other, facing the door. Allen had looked up, and had, he said, seen the door fly suddenly open and then shut without anyone entering that he could see!

The Remembered Threat

IN an instant he had remembered the Invisible Master's threat but before he had been able to cry out three shots had crashed out and his three partners had slumped dead with bullets through their skulls from behind. In the next instant another shot had crashed out of empty air and a bullet had buried itself beside Allen in the wall, but as that shot came he had cried out and there had come cries from all in the building who had heard. The door instantly had flown open and shut as the Invisible Master had fled without stopping to grasp at the cash and securities, and those who rushed in had found Allen standing still beside the wall, and unable for minutes to speak. The unheeded

threat of the Invisible Master lay crumpled on the table by the dead men.

With that tragedy the chill fear that held New York dissolved into stark terror, and as Carton pushed his way north to find Wade and Grantham there was all about him a wild confusion of panic.

Great crowds were forming and rolling toward the City Hall to be held back by the police and troops drawn up to guard it, where they shouted their wild demand to the city's officials that the Invisible Master be captured or killed or bought off at any price. There were wild rumors of even more terrible crimes the Invisible Master had committed, rumors of men done to death in the seething East Side, rumors of martial law to be declared and troops brought to the city.

Had the great crowds that bellowed their terror but known it, the city's officials were even then face to face with the Invisible Master's purpose. For in an inner room at City Hall, with Grantham and Wade there, and Carton too, they were reading the letter that had come but minutes before to them.

To the Mayor and Officials of New York:

Having shown in these last few days what the rule of the Invisible Master means to your city, I am ready now without fear of disbelief on your part to state the terms on which my reign of terror over this city will end. Those terms are—the immediate payment of five million dollars in assorted denominations. This money, in a steel box of moderate size, is to be placed in the following spot: Two miles north of the village of Pernview, on Long Island, on the west road, is a milestone. In the forest three hundred yards east of this milestone is a large oak. You will place the box on the boulder beneath this tree on tomorrow night, between eleven and twelve o'clock. You are at liberty to attempt to prevent me from getting the box, but it will only result disastrously for yourselves.

If this is done my activities will cease. If it is not done I will commence an even greater campaign of terror that will make a chaos of New York in hours. No troops or forces are of any use against me. I leave the raising of the money to you, but suggest that the city's business men be called on for it. Either they pay or I will make their city a desert of terror.

The Invisible Master.

CHAPTER IV

Blackmail

CARTON spoke softly through the darkness to the man beside him as their car stopped. "Is this the place, Wade?"

Wade nodded. "There's the milestone—you're ready, Grantham?"

Grantham nodded. "All ready—Kingston has the box."

As they emerged from the car onto the road that gleamed white in the darkness, Carton glimpsed behind it other cars from which dark shapes of men were emerging, rifles and pistols gleaming in their hands. All had turned off their lights, and the scrubby woods that rose on either side of the road seemed impenetrable walls of blackness.

It had been little more than a day, Carton reflected as he stood in the road with the others, since the Invisible Master's astonishing demand had been received by the New York authorities. There had been no doubt or dispute whatever as to whether that demand should be met. With wild crowds besieging the City Hall, with all New York's customary organized life sinking into chaos beneath the panic-pall of the Invisible Master's presence, there was no other course to follow, and a subscription for raising the money had instantly been started.

Through the rest of that day and the next the money had poured in, mostly in great sums from the banks and big business houses of the city who realized that it was only by payment of this tribute that the metropolis could be saved from chaotic ruin. Later on, they reasoned, the Invisible Master could be hunted down and dealt with, but now the thing was to lift his menace from New York. Five millions was a great sum, but not in comparison with the daily loss the city's businesses were undergoing. By the next afternoon the five millions were ready, a compact mass of securities and highest-denomination bills.

It had been placed in the specified small steel box, and given into the charge of Kingston, a representative of the city's government who was to place the money as requested. And since the Invisible Master had mockingly given full permission for any to attempt his capture who wished to, Wade and Grantham had worked out the scheme that held a slender chance of trapping the unseen criminal. With their two-score of armed men waiting behind them, Grantham explained the plan in the lowest of voices to Carton and Kingston.

"Kingston and I will take the box in and place it on the boulder," he whispered, "and when we do so I'll stretch in a circle of yards around it this thread of wire, and connect it to this pocket-battery and bell. Kingston and I will wait with the money, behind the big oak, and Wade's men will lie in a circle all around the spot."

"When the Invisible Master comes he'll make for the boulder, and must necessarily strike the stretched wire and ring the bell just before he reaches it. Then your men can rush in from all sides to enclose him in their circle, while Kingston and I will be there and armed to prevent the money from being taken by him. It's our one hope of catching him, for we'll never have this chance again, I think."

The Trap

WADE nodded. "We all understand the plan, Grantham. We'll wait for him if it takes until daylight."

"I think he'll appear tonight," Grantham said. "I imagine he is rather anxious to get the money and have it all over with."

"Well, good luck," whispered Wade, extending his hand, which the physicist grasped. Kingston too, a little nervously, shook hands with the officer, and then the two disappeared silently into the dark wall of the wood eastward.

Wade and Carton waited for a moment as silent as the grouped silent men behind them, and then as Wade passed a whispered order to them, they all were melting into the dark forest likewise. Swiftly they formed a circle of a hundred feet in radius around the great oak at whose foot was the stone the Invisible Master had specified. On that stone by then, Carton knew, the steel box would be resting, with Grantham and Kingston watching from close beside for the warning bell. The circle of men had in a moment crouched down here and there in the brush, Wade beside Carton, and the wood settled back into its accustomed night silence.

The trap was ready. Would the Invisible Master dare to enter it?

Carton remembered afterward the time of waiting that followed as a period of almost infinite length. Crouching silent and motionless with Wade in a clump of brush he listened tensely. Out to right and left of him, he knew, were crouching the dozens of men who made up the circle, each ready with rifle or pistol and electric torch, each listening as intently as themselves. And at the circle's center, Grantham and Kingston. All waiting for the unseen man who was to come to claim the price of the terror he had loosed upon New York.

Was it a twig that snapped somewhere to the left, Carton wondered? Every slightest sound seemed intensified in the unnatural stillness of the place. A half hour had passed but there came still no alarm. Wade was chewing gum as softly and silently as ever beside him, his heavy pistol ready in his hand. The desolate hum of crickets came to their ears.

Through the branches above Carton could see the moon drifting past. He began to try estimating by it how long they had waited. Then suddenly a sound came that shattered the stillness of the woods as with a tangible blow. The jangling of a bell!

"At him!" Wade cried as they leapt up, forward. All around them the dark shapes of men were running toward the towering oak!

They heard hoarse cries from Kingston and Grantham ahead—a single brief exclamation in a deeper voice—and then—crash!—crash!—crash! three shots echoing through the forest from ahead like the crash of cannon!

"He's there—don't let him get through!" Wade

cried. The circle of running men was contracting and merging in an instant upon the central oak. Their guns leapt in their hands as they burst into the little clearing beneath it. They stopped.

Kingston lay on the ground in a grotesque attitude beneath the light of their torches, shot through the heart. Grantham, blood welling from his left shoulder, was twisted in a half-sitting position beside him. There was no one else in the clearing and of the steel box that had rested on the boulder there was no sign!

"He got it!" Grantham whispered, his face distorted with pain. "He got it and got away—the Invisible Master!"

"Beat the woods!" Wade's voice flared. "Carry your torches and shoot at every sound of steps when there's no one visible with them! He's slipping out somewhere now!"

Grantham shook his head. "No use," he said. "We can't fight him, Wade. Kingston and I were crouched behind the oak with our wire ready, and we heard the bell ring, then as we leapt forward an instant later saw the steel case disappearing from off the stone! Kingston had grasped him, I think, was struggling with something invisible as we both cried out, and I heard an exclamation from him and then the shots roared out of the empty air just beside Kingston. Kingston fell like a stone, I heard one of the shots rip past me and another caught my shoulder. Then I heard the sound of leaping feet beside me just a moment before you burst into the clearing."

Whose Voice?

"BUT you heard his voice close beside you!" Wade exclaimed. "Was it Gray's?"

Grantham's pale face took on a certain puzzlement. "It may have been, Wade—I heard it for but an instant in that exclamation — I don't know whether that was Gray's or another's, it was a voice I had heard often before."

Wade nodded decisively. "That ends all doubt as to it's being Gray, at least. Carton, do what you can for Grantham's shoulder, while I see if any of the men have run across him."

But in minutes the men were streaming back with Wade, their search fruitless. They had found no one—could have found no one, Carton realized, in that search through the darkness for a being invisible. Wade shook his head.

"It's all over," he said, "and I realize now that we never really had a chance of capturing him. We can only hope that he'll be content with the five million and never again loose terror on any city as he did upon New York. Five millions—well, it may be best, after all."

Silently the party drove back to the city, and after they had taken Grantham to his rooms near the university and summoned a doctor for his wound, Carton and Wade rode together downtown. It was with a rueful shake of the head on the de-

tective's part that they parted; he to his headquarters and Carton to the *Inquirer's* city-room to pound out an abridged account of the night's events. By the time that Carton went wearily across the city to his own rooms newsboys were shouting in the streets the welcome news that the Invisible Master had been bought off and that his reign of terror was ended.

Carton, in his tired sleep, lived again the tense events of the night, and it seemed to his sleep-numbed mind that the warning bell they had heard was jangling again and again. It woke him finally, to find that it was his doorbell, and when he opened it Wade stood before him. The detective's sleepy eyes were more wakeful than ever Carton had seen them, but to the reporter's first excited question he snapped but a single order.

"Dress, Carton—we're going up to the university."

In minutes they were flying out along Riverside Drive through the growing morning sunlight. Around them the city was waking to a day of heart-felt rejoicing that the terror was lifted. Wade seemed the container of a strange grim force, and to Carton's questions returned no answer. But when they had drawn up before the familiar gray physics building and had entered the equally familiar little laboratory and ante-room, Carton found Grantham awaiting them, his shoulder bound and his face haggard from a sleepless night.

"You called me, Wade?" he asked. "Something you'd found?"

Wade nodded. "Yes. But first I'd like to have President Ellsworth here. He's near here, isn't he?"

Grantham nodded, frowning. "His home is—yes. I heard he'd been away for a day or two but he ought to be back by now."

He turned to the telephone, spoke briefly into it, and when he had finished turned to Wade. "He's coming," he said.

They sat silent until President Ellsworth entered minutes later. As he came in Carton noted that the two officers who had accompanied Wade and himself were lounging in the hall outside. The President's ordinarily genial face held some irritation.

Wade Makes a Statement

"WHAT'S this—a sort of post-mortem?" he asked. "I've just heard all about last night, Sergeant Wade—and it was too bad that the Invisible Master slipped through yours and Grantham's hands. But perhaps it's best that it's all over."

"It is not all over yet," Wade said quietly.

Ellsworth stared, as did Grantham and Carton. "You mean—the President began."

"I mean that I know at last who the Invisible Master is and where he is!" said Wade.

Ellsworth seemed too astounded to speak, but

Grantham leaned to grasp Wade's arm. "Is that true, Wade?" he asked. "You've actually found him?"

"I have," Wade told them quietly.

And then as the three others stared at him he went on. "You remember, Grantham, that you told me that in a case like this the ordinary police-routine, the gathering of fact after fact to apprehend a criminal, was useless? You may have been right, but I followed that routine and I've finally gathered among other facts, three facts that tell me everything I want to know about the Invisible Master. Had I had these three facts last night I could have saved us that struggle and Kingston's life, but I did not have them then. I have them now, though."

"And the three facts?" Grantham asked. Ellsworth was staring as though bewilderedly, Carton leaning tensely forward.

"The first fact," said Wade, "is something that President Ellsworth happened to say the other night—when we spoke of Gray—saying how Grantham and he had been hampered in their scientific work by lack of funds, and how it would be almost justifiable to take some of the city's pleasure-spent millions for the aiding of research."

They were all silent. Ellsworth's face had flushed.

"The second fact is one that not all of you may understand and that I myself was ignorant of until last night—it is the peculiar optical properties of tourmaline crystals."

Carton and Ellsworth stared at him blankly, but Grantham's eyes gleamed with sudden understanding.

"The third fact, which I also learned last night and which is the most significant perhaps of all, is the simple record of a stockbroker's account carried some weeks ago by Mr. Peter Harkness."

Wade was silent, and Carton, astounded and bewildered, could only stare at him still. Ellsworth was about to burst into questions but was interrupted by Grantham's voice. The physicist had risen and turned from them toward the window. His voice came over his shoulder to them.

"I think I can give you a fourth fact that will clinch it, Wade." His right arm crooked—

Wade leapt, but an instant too late. For when he spun Grantham around the physicist was already falling, his lips writhing with cyanide grains still upon them, a faint peachy odor in the air. He was still, dead, when Wade lowered his body to the floor. The detective straightened, mopping his brow.

"I was afraid of that," he panted. "I was afraid of it—but damned if I don't think it was his best way out!"

Carton and Ellsworth gazed as though petrified. Then Carton's voice—shaking—

"Then Grantham—Grantham himself—was the Invisible Master?"

Wade turned.

"There never was any Invisible Master at all," he said.

Back to the Laboratory

CARTON and Ellsworth stared at him for moments before they could speak.

"But Grantham's power of making things invisible!" Carton finally cried. "We saw him do it here—"

Wade shook his head. "You didn't Carton, but you thought you did."

He strode to the laboratory's long table, they with him. He searched along it for a time and found what he sought, a round disk of glass-like material, clear and transparent. He placed it against one small pane of the window, through which the sunlight was pouring, and to their amazement it showed black and opaque against the sunlight. Wade slowly turned the disk in his hand, keeping its flat side parallel to the window. As he turned it, it became less and less opaque until by the time he had given it a quarter-turn it was completely transparent, and was in fact wholly invisible because of the brilliant sunlight streaming through it from behind into their eyes!

Slowly Wade revolved the disk another quarter-turn and as he did so it became cloudy and translucent and then more and more opaque until at the end of the half-turn it was as dead black and visible against the sunlight as ever! Carton and Ellsworth stared unbelievably, and Wade handed the disk to them.

"A tourmaline crystal," he said. "There's another set in that small window pane. Their property is well enough known to physicists, and is a result and proof of the polarization of light. When two tourmaline crystals are placed together with their axes parallel, light streams through both unchecked. If one is turned so that its axis is at right angles to the axis of the other, though, light cannot pass through them and they become thus opaque. A quarter-turn of the one will make them transparent again.

"Grantham had one tourmaline crystal set in the window pane and the other in the disk form. He showed you the black glass paperweight disk he was going to make invisible, but when he leaned forward to put it on the little projector he palmed it and put there instead this tourmaline disk. It showed black, like the paperweight, though, because he placed it on the projector's framework with axis at right angles to that of the crystal in the window-pane.

"The sunlight was coming straight through the window into your eyes (he had chosen the hour), and you saw the black disk against it, resting on the projector's framework. Grantham and Gray had some sort of mechanism inside the projector to make an appropriate sound, but the switches Grantham turned actually controlled the framework above the

projector, which was made so as to turn the disk resting in it a quarter-turn when desired.

"You see how it was done? Grantham turned his switches, and as the tourmaline disk was turned slowly in its framework you saw it growing more and more transparent until when it had been turned a quarter-turn in the framework it was perfectly transparent and so invisible to your eyes in the strong sunlight streaming through it. Grantham let it remain so but a moment and then with his switch or rheostat control turned it back again a quarter-turn. It grew more and more cloudy and black until at a quarter-turn it was again black and opaque against the light. He reached for it, and when he turned to you again palmed it and could hand you the paperweight disk."

Carton shook his head like one dazed. "And it seemed such a perfectly open demonstration," he said.

"But that doesn't explain the Invisible Master!" Ellsworth exclaimed. "If Grantham's power was faked, who committed those three crimes that no one but an invisible person could have committed? Who took the money last night?"

Wade Reconstructs

"I THINK I can reconstruct the thing from the first," Wade said, "though some of the secret died with Grantham here. You told me yourself that he and Gray had long been prevented from engaging in the lines of research they desired because of their lack of funds. Well, I think that Grantham grew resentful at this, and then determined, and that he and Gray resolved to lay hands on the money they needed in their own fashion. To do it they worked out an elaborate and incredibly ingenious plan, that hinged upon Grantham's known reputation as a great physicist.

"Grantham and Gray prepared the tourmaline-crystal set-up, and then let it be known in one way or another that Grantham had discovered a method of making things invisible. Of course there was excitement, and of course the reporters, Carton among them, rushed out here to learn all about it. Then Grantham reluctantly consented to a demonstration, and after pulling this tourmaline-crystal stunt, sent them away, and you too, perfectly convinced that he had actually found a way to make matter invisible. That was his first great step—to implant in the minds of reputable witnesses the absolute conviction that he had really the power of making things invisible.

"Just what happened on that afternoon between Grantham and Gray may never be known fully, but there seems little doubt that Gray, who had been sullen at the demonstration that morning, had come to the point where he had resolved not to go on with the scheme. Probably he threatened to expose Grantham if he did not stop it, and no doubt Grantham saw exposure and oblivion on the

(Continued on page 368)

A criminal in the psychological laboratory has little chance of escape. Luther Trant again tears aside the veil of deception.

The HAMMERING MAN

Illustrated
By
WINTER

By
EDWIN BALMER
and
WILLIAM B. MACHARG



● THERE is an old saying, "Murder Will Out". This ancient axiom applies to nearly every crime, as Luther Trant, the Psychological Detective, demonstrates in this story. ●
● Not the least of all methods for the baring of ancient crimes, is the practical application of scientific principles. ●
● Readers of our magazine now know what the sphygmograph will do:—how by its use, the inmost thoughts and mental reactions can be recorded and disclosed to scientific observers. But that it should play a part in revealing the secret actions of a past generation is an astounding feat of which will thrill you to read of. ●

LUTHER TRANT, on the rainy morning of April 13th, sat alone in his office. On his wrist, as he bent closely over a heap of type-written pages spread before him on his desk, a small instrument in continual motion ticked like a watch. It was for him an hour of idleness; he was reading fiction. And with his passion for making visible and recording the workings of the mind, he was taking a permanent record of his feelings as he read.

The instrument strapped on

Trant's arm was called a sphygmograph. It carried a small steel rod which pressed tightly on his wrist artery. This rod, rising and falling with each rush of the blood wave through the artery, transmitted its motion to a system of small levers. These levers operated a pencil point, which touched the surface of a revolving drum. And as Trant had adjusted around this drum a strip of smoked paper, the pencil point traced on its sooty surface a continuous wavy line which rose and fell with each beat of his pulse.



Edwin Balmer William B. Macharg

Wrongly accused—exiled to Siberia—but Justice comes at last.

Luther Trant Lays Bare a Crime a Generation Old



"Look! Look!" cried the Lithuanian. "His heart beats bigger and stronger!"

As the interest of the story gripped Trant, this wavy line grew flatter, with elevations farther apart. When the interest flagged, his pulse returned to its normal beat and the line became regular in its undulations. At an exciting incident, the elevations swelled to greater height. And the psychologist was noting with satisfaction how the continual variations of the line gave definite record of the story's sustained power, when he was interrupted by the sharp ring of his telephone.

An excited, choleric voice came over the wire: "Mr. Trant? . . . This is Cuthbert Edwards, of Cuthbert Edwards & Co., Michigan Avenue. You have received a communication from my son Winton this morning? Is he there now? . . . No? Then he will reach your office in a very few moments. I want nothing whatever done in the matter! You understand! I will reach your office myself as soon as possible—probably within fifteen minutes—and explain!"

The sentence ended with a bump, as Cuthbert

Edwards slammed his receiver back upon its hook. The psychologist, who would have recognized the name—even if not forewarned by the communication he had received that morning—as the conservative head of one of the oldest and most “exclusive” Chicago families, of New England Puritan extraction, detached the sphygmograph from his wrist and drew toward him and reread the fantastic advertisement that had come to him inclosed in Winton Edwards’ letter. Apparently it had been cut from the classified columns of one of the big dailies.

Eva: The 17th of the 10th, 1905! Since you and your own are safe, do you become insensible that others now again wait in your place? And those that swing in the wind! Have you forgot? If you remember and are true, communicate. And you can help save them all! N. M. 15, 45, 11, 31; 7; 13, 32, 45; 13, 36.

The letter, to the first page of which the advertisement had been pinned, was dated “Chicago, April 13th,” the same day he had received it, postmarked three o’clock that morning, and written in the scrawling hand of a young man under strong emotion.

Dear Sir: Before coming to consult you, I send for your consideration the advertisement you will find inclosed. This advertisement is the one tangible piece of evidence of the amazing and inexplicable influence possessed by the “hammering man” over my *fiancée*, Miss Eva Silber. This influence has forced her to refuse to marry me; to tell me that I must think of her only as if she were dead.

This advertisement appeared first on last Monday morning in the classified columns of three Chicago papers published in English, and in the German *S*—. On Tuesday, it appeared in the same morning papers and in four evening papers and the German *A*—. It was submitted to each newspaper by mail, with no address or information other than the text as here printed, with three dollars in currency inclosed in each case to pay for its insertion. For God’s sake help me, Mr. Trant! I will call on you this morning, as soon as I think you are at your office.

WINTON EDWARDS.

The psychologist had hardly finished this letter, when rapid footsteps in the corridor outside stopped at his office door. Never had there been a more striking entrance into Trant’s office than that of the young man who now burst in—disheveled, wet with the rain, his eyes red for want of sleep.

“She has left me, Mr. Trant!” he cried, with no prelude. “She has gone!”

As he sank dazedly into a chair, he pulled from his pocket a small leather case and handed it to the psychologist. Within was the photograph of a

remarkably handsome girl in her early twenties—a girl sobered by some unusual experience, as showed most plainly in the poise of her little round head wrapped with its braid of lustrous hair, and the shadow that lurked in the steadfast eyes, though they were smiling and the full lips were smiling, too.

“You are, I presume, Mr. Winton Edwards,” said Trant, picking up the letter on his desk. “Now, if you have come to me for help, Mr. Edwards, you must first give me all the information of the case that you have.”

Miss Silber

“THAT is Eva Silber,” young Edwards replied. “Miss Silber had been employed by us a little over a year. She came to us in answer to an advertisement. She gave us no information in regard to herself when she came, and she has given none since. Because of her marked ability my father put her in complete charge of the house’s correspondence with our foreign agents; for in addition to English she speaks and writes fluently German, French, the Magyar dialect of Hungary, Russian, and Spanish.

“I was in love with her almost from the first, in spite of my father’s objection to the attachment. The first Edwards of our family, Mr. Trant, came to Massachusetts in 1660. So my father has the idea that anybody who came later cannot possibly be our equal; and Miss Silber, who came to America to work—the women of our family have stayed idly at home—did not get here until 1906.”

“Coming from where?” asked the psychologist.

“I don’t know,” the boy answered, simply. “I think she is an Austrian; for the Magyar dialect she speaks is the least likely of the languages she knows that she would learn by choice. I spoke of this to her once and she did not contradict me.” He paused to control his agitation and then went on:

“She had, so far as I know, no friends. So you see, Mr. Trant, that all that makes my father’s consent to marrying her only a greater proof of her evident goodness and charm!”

“Then he did consent to your marrying her?” Trant interjected.

“Yes; two weeks ago. I had begged and begged her to, but she never had been willing to give me her promise. A week ago last Wednesday, after she had known for more than a week that father had agreed to it, she finally consented—but only conditionally. I was going away for a short business trip, and Eva told me that she wanted that much time to think it over, but when I came back she would tell me all about herself and, if I still wanted to marry her after hearing it, she would marry me. I never imagined that anyone could force her to change her mind!”

The Hammering Man

“YET she did change her mind, you think?”

“Without question, Mr. Trant! And it seems to have been wholly because of the visit of

the 'hammering man,' who came to see her at the office the day after I left Chicago. It sounds queer to call him that; but I do not know his name nor anything about him, except the fact of his hammering."

"But if the people in the office saw him, you have at least his description."

"They say he was unusually large, gross, almost bestial in appearance, and red-headed. He was plainly dressed. He asked me to see Eva. When she caught sight of him she turned back and refused to speak with him."

"How did the man take her refusal?"

"He seemed very angry for a moment and then went out into the public corridor. For a long time he walked back and forth in the corridor, muttering to himself. The people in the office had practically forgotten him when they were startled by a noise of hammering or pounding in the corridor. One wall of the inner office where Eva had her desk is formed by the wall of the corridor, and the man was beating upon it with his fists."

"Hammering excitedly?" asked Trant.

"No. In a rather deliberate and measured manner. My father, who heard the sound, says it was so very distinctive as to be recognizable if heard again."

"Odd!" said Trant. "And what effect did this have on Miss Silber?"

"That is the strangest part of it, Mr. Trant. Eva had seemed worried and troubled ever since she learned the man was there, but this hammering seemed to agitate and disturb her out of all reason. At the end of the day's business she went to my father and abruptly resigned the position of trust she held with us. My father, surprised and angry at her refusal to give a reason for this action, accepted her resignation."

"You do not happen to know whether, before this visit, Miss Silber had received any letter which troubled her?"

"She may have received a message at her house, but not at the office. However, there is something still more mysterious. On Sunday, my father, sorry that he had accepted her resignation so promptly, in view of our relationship, ordered the motor and went out to see her— But, good Heavens!"

The loud rat-tat-tat of a cane had shaken Trant's door and cracked its ground glass from corner to corner, and the door was flung open to admit a determined little man, whose carefully groomed pink-and-whiteness was accentuated by his anger.

"Winton, go home!" The elder Edwards glared sternly at his son, and then about the office. "Mr. Trant—you are Mr. Trant, I suppose! I want you to have nothing to do with this matter! I prefer to let the whole affair drop where it is!"

"I reserve the right, Mr. Edwards," the psychologist said, rising, "to take up or drop cases only as I myself see fit. I have heard nothing yet in your son's story to explain why you do not want the case investigated."

"Then you shall have it explained," Cuthbert Edwards answered. "I called on Miss Silber last Sunday, and it is because of what I learned there, that I want Winton to have nothing more to do with her. I went to Miss Silber on Sunday, Mr. Trant, feeling that I had been too hasty on Thursday. I offered her an apology and was reasoning with her when I heard suddenly, in an upper room, the same noises that had so disturbed the quiet of my office on Thursday afternoon!"

"You mean the hammering?" Trant exclaimed.

"Precisely, Mr. Trant! The hammering! If you had heard that sound yourself, you would know that it is a very definite and distinctive blow, given according to some intentional arrangement. I no sooner heard it and saw the uneasiness it again caused in Miss Silber, than I became certain that the same disreputable man who had been to see Miss Silber at my office was then housed in her very home. I insisted, as she was provisionally my son's promised wife, on searching the house."

"Did you find him?" Trant inquired, sharply.

"No, I did not, Mr. Trant, though I went into every room and opened every closet. I found only what appeared to be the usual inmates of the house—Miss Silber's father and the woman who kept house for her."

"Miss Silber's father? Has Miss Silber a father?" Trant interrupted.

"He is hardly worth mentioning, Mr. Trant," the younger Edwards explained. "He must have suffered at some time from a brain trouble that has partly deprived him of his faculties, I believe. Neither he nor the housekeeper, who is not in Eva's confidence, is likely to be able to help us in this matter."

"The man may have slipped out of the house unseen, Mr. Edwards."

"Quite impossible," Cuthbert Edwards asserted. "Miss Silber lived in a little house west of Ravenswood. There are very few houses, none within at least a quarter of a mile of her. The ground is flat, and no one could have got away without being seen by me."

A Peculiar Story

"YOUR story so far is certainly very peculiar," the psychologist commented, "and it gains interest with every detail. Are you certain it was not this second interview with your father," he turned again to the boy, "that made Miss Silber refuse you?"

"No; it was not. When I got back yesterday and learned from father what had happened, I went out at once to Eva at her home. She had changed utterly! Not her feelings toward me, for I feel certain even then that she loved me! But an influence—the influence of this man—had come between us! She told me there was no longer any question of her marrying! She refused the explanation she had promised to make to me! She told me to go

away and forget her, or—as I wrote you—to think of her as dead!

"You can imagine my feelings! I could not sleep last night after I had left her. As I was wandering about the house, I saw the evening paper lying spread out on the library table and my eye caught her name in it. It was this advertisement that I sent you, Mr. Trant! Late as it was, I called up the newspaper offices and learned the facts regarding its insertion. At daybreak I motored out to see Eva. The house was empty! I went round it in the mud and rain, peering in at the windows. Even the housekeeper was no longer there, and the neighbors could tell me nothing of the time or manner of their leaving. Nor has any word come from her to the office."

"That is all then," the psychologist said, thoughtfully. "The 17th of the 10th, 1905," he reread the beginning of the advertisement. "That is, of course, a date, the 17th of the 10th month, and it is put there to recall to Miss Silber some event of which it would be sure to remind her. I suppose you know of no private significance this date might have for her, or you would have mentioned it."

"None on the 17th; no, Mr. Trant," young Edwards replied. "If it were only the 30th I might help you; for I know that on that date Eva celebrates some sort of anniversary at home."

Trant opened a bulky almanac lying on his desk, and as he glanced swiftly down the page his eyes flashed suddenly with comprehension.

"You are correct, I think, as to the influence of the so-called 'hammering man' on her movements," the psychologist said. "But as to her connection with the man and her reasons, that is another matter. But of that I cannot say till I have had half an hour to myself at the Crerar Library."

"The library, Mr. Trant?" cried young Edwards, in surprise.

"Yes; and, as speed is certainly essential, I hope you still have your motor below."

As young Edwards nodded, the psychologist seized his hat and gloves and his instrument case, and preceded the others from the office. Half an hour later he descended from the library to rejoin the Edwardses waiting in the motor.

"The man who inserted that advertisement—the 'hammering man,' I believe, of whom we are in search," he announced briefly, "is named N. Meyan, and he is lodging, or at least can be addressed, at No. 7 Coy Court. The case has suddenly developed far darker and more villainous aspects even than I feared. Please order the chauffeur to go there as rapidly as possible."

Coy Court, at which, twenty minutes later, he bade young Edwards stop the motor, proved to be one of those short intersecting streets that start from the crowded thoroughfare of Halsted Street, run squalidly a block or two east or west, and stop short against the sooty wall of a foundry or machine shop. Number 7, the third house on the left

—like many of its neighbors, whose windows bore Greek, Jewish, or Lithuanian signs—was given up in the basement to a store, but the upper floors were plainly devoted to lodgings.

The door was opened by a slattern little girl of eight.

"Does N. Meyan live here?" the psychologist asked. "And is he in?" Then, as the child nodded to the first inquiry and shook her head at the second, "When will he be back?"

"He comes to-night again, sure. Perhaps sooner. But to-night, or to-morrow, he goes away for good. He have paid only till tomorrow."

"I was right, you see, in saying we had need for haste," Trant said to young Edwards. "But there is one thing we can try, even though he is not here. Let me have the picture you showed me this morning!"

He took from the boy's hand the picture of Eva Silber, opened the leather case, and held it so the child could see.

"Do you know that lady?"

"Yes!" The child showed sudden interest. "It is Mr. Meyan's wife."

"His wife!" cried young Edwards.

"So," the psychologist said swiftly to the little girl, "you have seen this lady here?"

"She comes last night." The child had grown suddenly loquacious. "Because she is coming, Mr. Meyan makes trouble that we should get a room ready for her. Already she has sent her things. And we get ready the room next to his. But because she wants still another room, she goes away last night again. Rooms come not so easy here; we have many people. But now we have another, so to-night she is coming again."

"Does it now seem necessary for us to press this investigation further?" Cuthbert Edwards said, caustically.

As he spoke, the sound of measured, heavy blows came to them down the dark stair apparently from the second floor of the building. The elder Edwards cried, excitedly and triumphantly.

"What is that? Listen! That man—Meyan, if it is Meyan—must be here! For that is the same hammering!"

"This is even better luck than we could have expected!" exclaimed the psychologist; and he slipped by the child and sped swiftly up the stairs, with his companions closely following. At the head of the flight he passed by a stunted woman—whose marked resemblance to the little girl below established at once her two relationships as mother and landlady—and a trembling old man, and with the elder Edwards tore open door after door of the rooms upon that floor and the floor above before the woman could prevent him. The rooms were all empty.

"Meyan must have escaped!" said Cuthbert Edwards, as they returned, crestfallen, to the second story. "But we have proof at least that the child spoke the truth in saying Miss Silber had been here

to see him, for she hardly would have allowed her father to come here without her."

The Saloon

"**H**ER father! So this is Miss Silber's father!" Trant swiftly turned to examine with the keenest interest the old man who shrank back, shivering and shuddering, toward a corner. Even in that darkened hall he conveyed to the psychologist an impression of hoary whiteness. His hair and beard were snowy white; the dead pallor of his skin was the unhealthy whiteness of potato shoots that have sprouted in a cellar, and the iris of his eyes had faded until it was almost indistinguishable. Yet there remained something in the man's appearance which told Trant that he was not really old—that he still should be moving, daring, self-confident, a leader among men, instead of cringing and shrinking thus at the slightest move of these chance visitors.

"Meyan? Is it because you are looking for Meyan that you have made all this disturbance?" the woman broke in. "Then why didn't you ask? For now he is at the saloon, I think, only across the street."

"Then we will go there at once; but I will ask you," he turned to the elder Edwards, "to wait for us at the motor, for two of us will be enough for my purpose and more than two may defeat it by alarming Meyan."

Trant descended the stairs, took his instrument case from the motor, and with young Edwards crossed the street quickly to the saloon.

A dozen idlers leaned against the bar or sat in chairs tilted against the wall. Trant examined these idlers one after another closely. The only man at whom he did not seem to look was one who, as the only red-headed man in the place, must plainly be Meyan. "Red-headed" was the only description they had of him, but meager as it was, with the landlady's statement as to Meyan being in the saloon, Trant resolved to test him.

The psychologist took an envelope from his pocket and wrote rapidly upon the back of it.

"I am going to try something," he whispered, as he flicked the envelope across the table to Edwards. "It may not succeed, but if I am able to get Meyan into a test, then go into that back room and speak aloud what I have written on the envelope, as though you had just come in with somebody."

Then, as Edwards nodded his comprehension, the psychologist turned easily to the man nearest him at the bar—a pallid Lithuanian sweatshop worker.

"I suppose you can stand a lot of that?" Trant nodded to his glass of pungent whisky. "Still—it has its effect on you. Sends your heart action up—quickens your pulse."

"What are you?" the man grinned; "temperance lecturer?"

"Something like that," the psychologist answered. "At least, I can show you the effect whisky has upon your heart."

He picked up the instrument case and opened it. The loungers gathered about him and Trant saw with satisfaction that they thought him an itinerant temperance advocate. They stared curiously at the instrument he had taken from its case.

"It goes on the arm," he explained. The Lithuanian, with a grin toward his companions, began to turn up his sleeve. "Not you," Trant said; "you just had a drink."

"Is there a drink in this? I ain't had a drink since breakfast!" said another who pushed up to the table and bared his blue-veined forearm for Trant to fasten the instrument to it.

Young Winton Edwards, watching as curiously as the others, saw Trant fasten the sphygmograph on the mechanic's arm, and the pencil point commenced to trace on the sooty surface a wavy line, the normal record of the mechanic's pulse.

"You see it!" Trant pointed out to the others the record, as it unwound slowly from the drum. "Every thought you have, every feeling, every sensation—taste, touch, smell—changes the beating of your heart and shows upon this little record. I could show through that whether you had a secret you were trying to conceal, as readily as I will show the effect whisky has on you, or as I can learn whether this man likes the smell of onion." He took from the free-lunch on the bar a slice of onion, which he held under the man's nose. "Ah! you don't like onion! But the whisky will make you forget its smell, I suspect."

As the odor of the whisky reached the man's nostrils, the record line—which when he smelled the onion had become suddenly flattened with elevations nearer together, as the pulse beat weakly but more quickly—began to return to the shape it had had at first. He tossed off the liquor, rolling it upon his tongue, and all saw the record regain its first appearance; then, as the stimulant began to take effect, the pencil point lifted higher at each rise and the elevations became farther apart. They stared and laughed.

"Whisky affects you about normally, I should say," Trant began to unfasten the sphygmograph from the man's wrist. "I have heard it said that black-haired men, like you, feel its effect least of all; light-haired men more; men with red hair like mine feel the greatest effect, it's said. We red-headed men have to be careful with whisky."

"Hey! there's a red-headed man," one of the crowd cried, suddenly, pointing. "Try it on him."

The Red-Headed Man

TWO enthusiasts at once broke from the group and rushed eagerly to Meyan. He had continued, inattentive through all, to read his newspaper, but now he laid it down. Trant and young Edwards, as he rose and slouched half curiously toward them, could see plainly for the first time his strongly boned, coarsely powerful face, and heavy-lidded eyes, and the grossly muscular strength of his big-framed body.

"Pah! your watered whisky!" he jeered in a strangely thick and heavy voice, when the test had been explained to him. "I am used to stronger drinks!"

He grinned derisively in the surrounding faces, kicked a chair up to the table and sat down. Trant glanced toward Edwards, and Edwards moved silently back from the group and disappeared unnoticed through the partition door. Then the psychologist swiftly adjusted the sphygmograph upon the outstretched arm and watched intently an instant until the pencil point had caught up the strong and even pulse which set it rising and falling in perfect rhythm. As he turned to the bar for the whisky, the rear door slammed and the voice Trant was expecting spoke:

"Yes; it was at Warsaw the police took him. He was taken without warning and from his friend's house. What next? The prisons are full, but they keep on filling them; the graveyards will be full next!"

"Look! look!" cried the Lithuanian beside Trant at the table. "He bragged about watered whisky, but just the sight of it makes his heart beat bigger and stronger!"

Trant bent eagerly over the smoked paper, watching the stronger, slower pulse beat which the record showed.

"Yes; before he takes the whisky his pulse is strengthened," Trant answered; "for that is how the pulse acts when a man is pleased and exults!"

He waited now, almost inattentively, while Meyan drank the whisky and the others grew silent in defeat as the giant's pulse, true to his boast, showed almost no variation under the fiery liquor.

"Pah, such child-foolishness!" Meyan, with steady hand, set the glass back on the table. Then, as Trant unclasped the straps around his arm, he rose, yawned in their faces, and lounged out of the place.

The psychologist turned to meet young Edwards as he hurried in, and together they went out to join the father at the motor.

"We can do nothing sooner than to-night," Trant said, shortly, an expression of keen anxiety on his face. "I must learn more about this man, but my inquiries must be conducted alone. If you will meet me here again at seven o'clock to-night, say at the pawnbroker's shop we passed upon the corner, I hope to be able to solve the mystery of the 'hammering man,' and the influence he is undoubtedly exerting on Miss Silber. I may say," he added after a moment, "that I would not attach too much weight to the child's statement that Miss Silber is Meyan's wife. It is understood, then, that you will meet me here to-night as I have suggested."

He nodded to his clients, and ran to catch a passing street-car.

Promptly at seven o'clock, in accordance with Trant's directions, young Winton Edwards and his father entered the pawnshop and started negotiations for a loan. Almost immediately after they

arrived there, Trant joined them, still carrying in his hand his instrument case. The boy and his father closed their negotiations and went out with Trant into the street. They saw then to their surprise, that the psychologist was not alone. Two men were awaiting them, each of whom carried a case like Trant's. The elder of the two, a man between fifty and sixty years old, met young Edwards' stare with a benignant glance of his pale blue eyes through an immense pair of gold spectacles. The other was young, pale, broad-browed, with an intelligent face, and his gaze was fixed in a look of dreamy contemplation. They were dressed as mechanics, but their general appearance was not that of workmen.

The door of Meyan's lodging house was opened to them by the landlady. She led the way to the second floor, but paused to show a room to Trant.

"That is Meyan's room," Trant explained. "We will wait for him over here." He followed the woman into a small and stuffy bedroom on the other side of the hall. "We had better not speak while we are waiting and—we had better wait in the dark."

In the strange, stuffy, darkened little room the five sat in silence. Footsteps passed often in the street outside, and twice some one went through the hall. A half hour they waited thus. Then a heavier footstep warned them of Meyan's coming. A moment later, the front door opened again and admitted—as Trant felt from the effect of the first tone which reached the boy waiting at his side—Eva Silber. Trant quickly prevented him from going out. It was only after several minutes that he turned up the light and motioned to the two strangers who had come with him. They immediately rose and left the room.

A Trying Ordeal

"I AM going to submit you both to a very trying ordeal," Trant said to his clients, in a tone so low it could not reach the hallway, "and it will require great self-control on your part. Within five, or I hope at most ten, minutes, I am going to show you into Meyan's room where you will find, among other persons, Meyan himself and Miss Silber. I want you to promise that neither of you will attempt to question or to speak to Miss Silber until I give you leave. Otherwise I cannot allow you to go in there, and I have my own reasons for wanting you to be present."

"If it is essential, Mr. Trant—" the elder Edwards said.

Trant looked to the boy, who nodded.

"Thank you," said the psychologist; and he went out and closed the door upon them.

Fully a quarter of an hour had passed, in spite of Trant's promise to summon them in ten minutes, before the psychologist again opened the door and ushered them into the room they already knew as Meyan's.

The long table in the center of the room had been

cleared and behind it three men sat in a row. Two of these were the strangers who had come with Trant, and the cases they had carried, together with the one Trant himself had brought, stood open under the table. The man who sat between these two was Meyan. Near the table stood Miss Silber.

At sight of her, Winton Edwards made one swift step forward before he recollected the promise he had made, and checked himself. Eva Silber had grown pale as death. She stood now with small hands clenched tight against her breast, staring into the face of the young American she loved. Trant closed the door and locked it.

"We can begin now, I think," he said.

He stooped at once over the instrument cases and brought out from them three folding screens, about eighteen inches square when extended, which he set on the table—one in front of each of the three men. At the bottom of each screen was a circular hole just large enough for a man's arm to go through; and at Trant's command the men put their arms through them. Stooping again swiftly over the instrument cases, Trant took out three sphygmographs.

He rapidly adjusted these on the arms of the three men, and set in motion the revolving drums, against which the pencil points traced their wavy lines on smoked paper. His clients, leaning forward in their interest, could then understand the purpose of the screens, which were designed to hide the pitilessly exact records from the three men.

For several moments Trant allowed the instruments to run quietly, until the men had recovered from the nervousness caused by the beginning of the test.

"I am going to ask Miss Silber to tell you now, as briefly as she can," he said, after a pause, evenly and steadily, "the circumstances of her father's connection with the Russian revolution which brought him to the state you have seen, and the reasons why she has left you to go with this man to Russia."

"To Russia?" broke from Winton Edwards.

"To Russia, yes!" The girl's pale cheeks glowed. "You have seen my father, what he is, what they have made of him, and you did not know he was a Russian? You have seen him as he is! Let me tell you—you, who wear proudly the badge of your revolution fought in seven short years by your great-grandfathers—what my father was!

"Before I was born—it was in the year 1887—my father was a student in Moscow. He had already married my mother the year before. The Czar, finding even the teachings he had been advised to permit made people dangerous, closed the universities. Father and his fellow students protested. They were imprisoned; and they kept my father, who had led the protest, so long that I was three years old before he saw his home again!

"But suffering and prison could not frighten him! In Zurich, before he went to Moscow, he had been trained for a doctor. And seeing how powerless

the protest of the student had been, he determined to go among the people. So he made himself a medical missionary to the poorest, the most oppressed, the most miserable; and wherever he was called to carry a cure for disease, he carried, too, a word of hope, of courage, of protest, a cry for freedom!

A Terrible Story

"**L**ATE one night, in a terrible snowstorm, just twenty years ago, a peasant brought to our door a note, unsigned for the sake of safety, it seemed, telling father that an escaped political prisoner was dying of exposure and starvation in a hut on a deserted farm ten miles from the town. My father hurried to his horse and set out, with food and fagots, and by morning, through the cold and deep snow, he reached the place.

"There he found a man apparently freezing to death, and fed and warmed him; and when the fellow was able to tell his pitiful tale, father boldly encouraged him, told him of the organization of protest he was forming, and asked him to join. Little by little father told him all he had done and all his plans. At nightfall father held out his hand to say farewell, when the other pulled a pistol from his pocket. In the fight that followed, father was able only to wound the other upon the chest with the blunt knife they had used to cut their food, before the spy called a confederate down from the loft, and father was overcome.

"On the information of these police spies, without trial of any sort—father's friends could discover only that the name of his betrayer was Valerian Urth—father was sentenced to solitary confinement in an underground cell for life! And my mother—because she sent food and fagots to a supposed convict—was exiled to Siberia! Ten years ago, her sister who took me, received word that she died on the convict island of Sakhalin; but my father—" he gasped for breath—"lived, at least!"

She stopped as suddenly as she had begun. Trant, who had stooped swiftly to watch his records more closely when the name of the police spy was mentioned, still kept his gaze steadfastly upon his instruments. Suddenly he motioned to the girl to complete her narrative.

"Five years ago, when I was eighteen, I left my mother's sister and went back to my father's friends, such of them as were still free," she continued. "Many who had worked with him for the organization, had been caught or betrayed. But others and more had come in their places; and they had work for me. I might move about with less suspicion than a man. So I helped prepare for the strikes of 1905, which at last so terrified the Czar that on the 30th of October he issued his manifesto to free those in prison. I had helped to free my father with the rest. I took him to Hungary and left him with friends while I came here. Now, do you not understand why I am going back?" she turned in pitiful appeal to young Edwards. "It is

because there is work again in Russia for me to do! The Russian government is taking vengeance to-day for the amnesty of 1905 which freed my father!"

The Sphygmograph Talks

SHE checked herself again and turned to Trant to see if he would force her still to proceed. But he was facing intently, as if fascinated, the strange "hammering man" and his two stranger companions; yet he was not watching their faces or their figures at all. His eyes followed the little pencil points which, before each of the three, continually traced their lines of record. Then he took quickly from his pocket a folded paper, yellow with age, worn, creased, and pierced with pin marks. In the sight of all he unfolded it swiftly upon the table before the three, refolded it, and put it back into his pocket. And though at sight of it no face changed among the three, even Trant's clients could see how one line now suddenly grew flat, with low elevations, irregular and far apart, as the pencil point seemed almost to stop its motion over the smoked paper of the man in the middle, Meyan.

"That is all," said Trant, in a tone of assured triumph, as he unstrapped the sphygmographs from their wrists. "You can speak now, Mr. Edwards."

"Eva!" cried Winton Edwards, in wild appeal. "You are not married to this man?"

"Married? No!" the girl exclaimed in horror. "until last Thursday, when he came to the office, I never saw him! But he has come to call me for the cause which must be to me higher and holier than love! I must leave my love for the cause of the Russian revolution!"

"In the cause of the revolution! So!" Meyan now, with a heavy slouch of his muscular body, left his two companions at the table and moved up beside the girl. "Have any more of you anything to say to her before she goes back with me to Russia?"

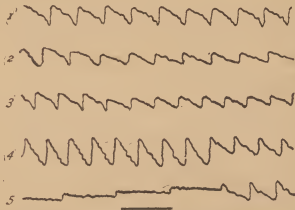
"To her?—no!" Trant replied. "But to you—and to these gentlemen," he motioned to the two who had sat at the table with Meyan, "I have to announce the result of my test, for which they are waiting. This elder gentleman is Ivan Munikov, who was forced to leave Russia eight years ago because his pamphlet on 'Inalienable Rights' had incurred the displeasure of the police. This younger man is Dmitri Vasil, who was exiled to Siberia for political offenses at thirteen years of age, but escaped to America. They both are members of the Russian revolutionary organization in Chicago."

"But the test—the test!" cried Vasil.

Explanation of Graphs

1. Sphygmograph record of healthy pulse under normal conditions. 2 and 3. Sphygmograph records of Dmitri Vasil and Ivan Munikov when Eva Silber told of her father's betrayal: the lower and

rapid pulsations thus recorded indicate grief and horror. 4. Record of Meyan on this occasion: the strong and bounding pulse indicates joy. 5. Meyan's sphygmograph record when Trant shows the yellow note that betrayed Herman Silber; the feeble, jerky pulse indicate sudden and overwhelming fear.



"The test," the psychologist turned sternly to face Meyan, "has shown as conclusively and irrefutably as I could hope that this man is not the revolutionist he claims to be, but is, as we suspected might be the case, an agent of the Russian secret police. And not only that! It has shown just as truly, though this fact was at first wholly unsuspected by me, that he—this agent of police who would have betrayed the daughter now and taken her back to Russia to be punished for her share in the agitation of 1905—is the same agent, who, twenty years ago, betrayed the father, Herman Silber, into imprisonment! True name from false I do not know; but this man, who calls himself Meyan now, called himself then, Valerian Urth!"

"Valerian Urth!" Eva Silber cried, staggering back into Winton Edwards' arms.

But Meyan made a disdainful gesture with his huge, fat hands. "Bah! you would try to prove such things by your foolish test?"

"Then you will not refuse, of course," Trant demanded, sternly, "to show us if there is a knife-scar on your chest?"

Even as Meyan would have repeated his denial, Vasil and Munikov leaped from the rear of the room and tore his shirt from his breast. The psychologist rubbed and beat the skin, and the blood rose to the surface, revealing the thin line of an almost invisible and time-effaced scar.

"Our case is proved, I think!" The psychologist turned from the two who stared with eyes hot with hate at the cringing spy, and again faced his clients.

He unlocked the door, and handed the key to Munikov; then, picking up his instrument cases and record sheets, with Miss Silber and his clients he left the room and entered the landlady's sitting room.

(Continued on page 380)

Alone with a vicious killer in an underground cavern, Brewster follows a long trail to the solution of a mystery.

A DENIZEN of the - - - UNDERWORLD

Illustrated
by
WINTER



After a few turns of the brace it was apparent that the bit had penetrated whatever it was boring.

By
WALTER KATELEY



Walter Kateley

GEORGE BREWSTER stood at the bench with up-raised hammer and tightened jaw ready to strike a kink

in a metal barrel-hoop.

"I have an order to transfer you to the press room, George. Report there in the morning."

At the foreman's words, the new mechanic dropped both hammer and jaw.

"Better take along a pair of thin trousers", the boss went

● **ONE** of the most baffling as well as irritating crimes to the average police official is the disappearance of merchandise or goods when there is no apparent reason how the goods vanish.

● Sometimes valuables vanish right under the law's nose; yes, even while they are looking on.

● And, when the merchandise in question is of a semi-fluid consistency, the loss is even more irritating, as you will easily discover by perusing the present effort of our well known author. He shows us clearly how, by a new trick, the thing is done.

● The story is filled with good science.

on. "Some old ones, because you will have to cut the legs off."

● "Your check number is 438, isn't it?" he added, looking back as he hurried away.

● Brewster nodded.

● Then he looked in a rather dazed way at the hammer. Slowly he laid it down, and stared at his open palm. It was sore and red from newly formed callouses and recently broken blisters.

● "So it's the press room next," he said.

● He had fallen into the habit of thinking aloud here in the

factory, for there was always so much noise that no one was likely to hear him.

For once he was almost sorry he was a detective. He had not expected that there would be always primrose paths, but this was a little too much.

For two weeks he had been standing at this bench, straightening and re-riveting old barrel hoops, most of them kinked and twisted or covered with rust.

And now, the press room! Well he knew, that the press room of a linseed-oil mill was not a place where one could wish to work.

Two months ago he had been assigned to this case; a case which up to the present time had baffled all investigators. For years extensive thieving had been going on in the plant, thefts of flax-seed that entailed the loss of \$20,000.

The company planned to have a detective work for a few weeks in each of the various departments, cultivating the acquaintance of the employees and watching at all times for any sign of leakage.

This was the great Midland Linseed Oil Mill, the largest of all producers of linseed oil. The mill consumed hundreds of thousands of bushels of flax-seed in the course of a year's operations, but in spite of stringent regulations, for several years the annual inventory had shown a shortage of from one to three thousand bushels of seed in the bins.

Several investigators had from time to time attempted to trace the loss; without result. It was Brewster's chance in life to make good.

Hours were long and the work tedious. He worked in the shipping room, in the weighing department; with the machines, and, the last two weeks, in the cooper shop of the barreling department. Now the cooper's trade is not one that can be learned in a day.

Blank Walls

HE had been given a large, awkward hammer, and set to work at a bench to straighten and repair used barrel-hoops. The work was hard and disagreeable; and the opportunities for investigating very small.

Most of the employees in this department were Hungarians who spoke little English.

The boss of the department and the head-cooper were obviously Americans; the former deaf, and the other surly, baffling George's efforts to fraternize.

Obviously there was little to be gained here. Brewster saw men going to and from the press room, and his heart sank at the prospect of his next job.

They wore no shirts, and only the most sketchy trousers, usually cut off half way down to the knee, and sandals or slippers with thick, heavy, wooden soles.

They always came out reeking with sweat, and limp from the effects of the heat.

Flax-seed refuses to give up its oil until it is heated to about 190 degrees F., and subjected to a pressure of two or three hundred tons.

So the job in the press room was considered by far the worst job in the whole plant; it was rumored that no man could stick to it more than two years.

But, although Brewster was small he was young and athletic; and in times of emergency possessed reserve power of endurance.

"Well, I suppose I can stand it a couple of weeks if these chaps stand it a couple of years," he said as he checked in next morning and listened to the instructions given him by the press foreman.

"There is not much to this but sheer endurance," George was told. "You will be taking the meal cakes out of the hot presses and loading them onto trucks. It is quite heavy work, and you will have to move fast in order to keep up with your machine. Be careful not to get your hands caught in the cogs, and if you feel faint, make a beeline for the nearest door.

"We work fifteen minutes and then take fifteen minutes off. It is a good idea to have a shirt or a coat handy to slip on when you go out, as you will not be so liable to catch cold."

As the foreman fetched him some "clod" shoes, Brewster removed his street clothes and put on the abbreviated trousers that he had "cut-off" for the occasion.

He was conducted to one of the machines and joined by another workman.

"This is Jim," the boss said. "Jim will work partner with you on this machine, and show you how it is done."

With that he hurried away.

Jim looked at the clock. "In one minute now we will change shifts," he said. "You will hear the gong.

"There is nothing to it," he explained. "We just take the cakes out of the press when they are released. I will take the first one and you the second, and so on. Be careful not to touch the press, but only the meal cake.

"They are hot, but you mustn't mind that; they won't really burn you; and be careful you don't slip and fall. The floor is reeking with oil."

Difficulties

FOR a moment Brewster watched the stream of gray flax meal pouring into the press, and listened to the continual hiss of steam as it circulated through the sizzling hot machines. He noted that everything about the place that hands could touch was covered with a thick glazing of oil, which had hardened one coat upon another until it produced a finish so unbelievably smooth to the touch that it was positively fascinating. This fascination was so pronounced that wherever workmen passed along, he saw them reach out an oily hand and

slide it along the polished surface with evident relish.

Evidently this supplied a little more oil, which added to the ever-increasing gloss.

The press machines did not seem complicated. The meal was poured into fiber containers, between heavy plates of metal standing upright and moving along a horizontal guide.

The press plates emerged from a steam chamber and appeared very hot. The meal also was steaming hot. As it was pressed into thin layers it exuded the oil, which formed into thin little streams and trickled down into troughs, whence it was conducted to the oil tanks.

Upon arriving at the end of the guide, each plate tipped down, releasing its layer of meal, now reduced to a hard light grey cake less than an inch thick.

As the plates tipped down, they proved to be attached to an endless chain, which carried them back under the long press and up again to the steam chamber.

And now the gong sounded; and the two men took their places at the machine. As the first cake was released, Jim seized it by its two opposite edges, and placed it on the waiting truck. Brewster was ready for the next one, and caught it without mishap, depositing it on top of the first one; and so was successfully launched on his new job.

Although everything about him was reeking hot, he worked for a few minutes with but little discomfort. Then his breathing gradually became more labored; and the air seemed positively to burn him when inhaled. It was so dry that it parched his throat. Then his arms and legs became heavy, and every movement was accomplished with an effort.

He looked at the clock. He had been at work only ten minutes.

Jim was working on mechanically, looking neither to the right or left. Surely he could stick it out for fifteen minutes if Jim could, for Jim was rather a frail looking fellow.

Brewster was perspiring profusely. Little streams ran down his face and trickled off his chin and the end of his nose. He felt them creeping down his back. Then for a moment he saw a vision of a cool brook, bubbling along beneath a shady grove.

But he must not let his mind wander; and he must be very careful where he put his hands.

It seemed as though his sight was not as clear as it should be; but probably that was due to perspiration in his eyes. But what was that roaring sound in his ears? He wondered if that could be a sign of fainting; and he recalled the boss's orders to make for an open door in case of such an emergency.

Well, perhaps it was only a passing feeling. He would stay a moment longer. Then he heard the sound of the gong. It seemed very far away.

CHAPTER II

The First Clue

HE started for the open door. As he hurried along, he became conscious of Jim's voice beside him. "The first hundred years is always the worst. You won't mind it so much the next time. Where is your coat?"

Other crews joined them as they emerged from the building. It was a warm day in midsummer, and the men lit cigarettes and lounged about on the ground, or on the long plank benches that stretched along the shady side of the building. Every one talked and joked freely, but they coughed a great deal, and not a few of them showed unmistakable signs of failing health.

All too soon the fifteen minutes' respite was over, and they returned to their work.

This time, as Jim had prophesied, the detective did not find it so hard to do his stint. As the day wore on, he found the work becoming less difficult, and the heat less hard to bear.

On the second day during the noon hour, Brewster walked a little way from the factory and sat down on the exposed roots of a large shade tree to eat his lunch.

After eating, he sat enjoying the cool shade, and thinking about the manner of the disappearance of the missing flax-seed, his gaze resting on the tangled mass of roots beneath him.

At length a scrap of paper lodged in the tangle caught his attention and aroused his curiosity.

With some little difficulty he secured it, and smoothing it out on his knee found that it was a torn portion of a blue-print.

Upon careful examination he decided that it must be a sectional map of a sewer system. In the extreme corner was the notation, "section 44."

The location of a portion of several streets was shown; and running through them was a large clear line, marked "Seven Foot Tunnel. Completed 1879."

"This must be old stuff," he thought. "Maybe that old trunk sewer hasn't been used for twenty years. I suppose there are plenty of them around town that are large enough for a man to walk in."

His eyes wandered over the surrounding landscape. Suddenly he sprang to his feet; and his face lighted up with an expression of keen interest.

"This is a real discovery," he said under his breath. "This is my clue!"

He folded the paper and put it carefully in his pocket. Then for a few minutes he gave his undivided attention to his surroundings.

He was on a hill, overlooking quite a broad valley, part of which was a public park. In the side of the hill, at the edge of the valley, was the large oil plant, served by a spur from the main railroad. There were several of these tracks, winding along the edge of the valley.

Lower down, beyond the railroads, was the river, which had been widened and deepened to form a ship canal.

George Studies the Scene

LOOKING up the valley, and along the crest of the same hill, he saw perhaps half a mile distant, a very imposing school building.

This vast structure was reputed to be the largest single school building in the Mid-West. In front of the school, the slope of the hill was divided into two sections, separated by a terrace-like level stretch some ten or twelve rods wide. This comparatively level plot was about two-thirds of the way up the hill, which rose at this point some fifty feet above the valley floor. A broad paved walk crossed the little park from the residence section beyond, and boldly ascended to the school by means of two spacious flights of steps.

Brewster knew that originally the great oil plant had been on the outskirts of the city; but the town had grown so tremendously during the last two or three decades that it was now considered quite downtown.

The detective suddenly decided that he would not work in the mill that afternoon; but would spend the rest of the day in following up his new lead. At the works he pleaded sudden illness, and went home. Arriving at his boarding house, he dressed hurriedly and then betook himself to the city hall. Here he sought out the commissioner of sewers, and introduced himself as an investigator for a historical society. He asked about maps and other information regarding old sewer systems of the municipality.

The commissioner was glad to accommodate him, and called on an aged clerk to help him find such features of the old improvements as he might deem of interest.

Brewster professed to be especially interested in the district around the large school and the linseed oil mill.

"The entire trunk system has been replaced in that neighborhood," said the old man. "The old trunk lines were so small and poorly located that we decide to abandon them entirely and build new ones, more advantageously located. These new lines have been connected up with the street sewers for a number of years. The last connection was made about ten years ago."

Perhaps an old map was still on file; but it was doubtful, because most of the old maps of abandoned works had been disposed of; thrown out in the trash, when they moved into the new city hall last spring.

Yes, luck was with them. They did find an old map of the early sewers of the exact district in question. The old man took no little pride in his knowledge of the old time system. He very obligingly pointed out the salient points of the old works, and compared them with those of the new and more modern ones now in use.

Brewster was keenly interested, and inquired if it would be possible to borrow the old section sheet, as it was called.

He was assured that it would no doubt be quite possible, since it was no longer necessary equipment for the department.

The Tunnel

THE investigator offered to make a deposit for its safe return; and with the help and explanations of the aged clerk the loan was presently arranged.

Brewster hurried back to the vicinity of the mill and school, to try to locate definitely the main lines of the abandoned sewer.

There was a seven-foot tunnel indicated as following along the base of the long hill, and emptying into the canal. The sewage from this line, so the old clerk had explained, had so polluted the water of the canal, that as the city spread and enveloped the locality it became necessary to divert this sewage into another line that emptied into the river, far below the city. As near as Brewster could determine, this tunnel had passed under the foot of the flight of steps approaching the school house; and following along the base of the hill, had passed not far from the newer buildings of the great mill. In fact, it was somewhere under the railroad switch lines. It was quite probable that the tunnel had been encountered in placing the foundations for the massive steps.

In order to determine if this was so, Brewster decided to visit the building permit department on the following day, and to examine, if possible, the architect's plans for the improvement.

In this project he encountered no difficulty. He found the plans to be quite thorough regarding detail of construction. But no obstructing sewer line was anywhere indicated. Perhaps the architect had been unaware of its existence until the excavation for the footings was well under way. Or perhaps he had judged that the line was entirely below the level of the footings. However, the ground plan of the basic concrete structure proved to be quite interesting. In general contour it resembled a wide-membered capital T; the stem of the T being the first flight of steps, ascending to a landing. At both right and left of this landing another flight, at right angles to the first, ascended to the higher level; and at the head of each of these flights was another spacious landing, on a level with the concrete sidewalk.

The whole structure was hemmed about with a very massive and imposing railing.

The footings for the whole structure were at the same level, on a stratum of hardpan some six feet below the lowest of the steps. Therefore it had required quite high walls to support the upper flights together with their respective landing platforms. These tall walls had been built very substantially of re-enforced concrete, in order to support their heavy loads. Each member; that is, each flight or landing, was supported by four walls, constituting a box-like structure; the top or roof of which

was either steps or platform. It occurred to Brewster that these must form quite spacious rooms in case they had not been filled in with earth or other material. In fact, the tallest of them, the ones supporting the two upper landings, were about 22 feet in depth and 20 feet width and length.

On further examination Brewster found that if these cavities had been left vacant, they were also hermetically sealed by the thick walls of concrete and stone; so that there was no possibility of entering or even seeing into them.

Although he had found no definite evidence, the detective was convinced that the flax-seed thief was in some way making use of this old trunk sewer and possibly these cavities beneath the steps. He determined at all hazards to find an entrance to the tunnel and explore it.

CHAPTER III

George Explores

BY the aid of the map he readily found where the tube came out to the canal. The entrance was barred by a rusty door or iron grating. The ancient bolt that had formerly secured it had so rusted away that it no longer held fast; and with some effort he was able to swing the door on its protesting hinges sufficiently to allow him to squeeze his body through. Although there was some deposit of debris in the bottom of the tube, which was egg-shaped and built of brick, there was still ample room for the small man to stand upright. He could discover no tracks near the outlet of the tube, and so was led to the conclusion that if it was indeed being used by the thief, he must have access to some other entrance. A little stream of sluggish water was trickling along the bottom of the tunnel; and although the explorer only penetrated the darkness of the interior a few yards, he soon commenced to experience the uncomfortable feeling of wet feet. So he came out rather gingerly and closed the door behind him.

He was still determined to explore the tunnel, but it was evident that for this business he would need rubber boots and some kind of a light. He decided to go home and procure the necessary equipment.

At home, after providing himself with a pair of wading-boots and a flashlight with several extra batteries, he sat down to think over the situation.

Obviously this was a very dangerous undertaking. Not knowing what pitfalls there might be in the old tunnel, that had remained unused for years; what chance could he have of discovering the robbers, if indeed there really were robbers, without their first discovering him? He took out his automatic and examined it carefully, making sure that it worked easily. But what use would a gun be, when the enemy was under cover of darkness and had all the advantage of knowing the ground? No. On second thought it would be better to resort to strategy; to leave all weapons behind, and go as

on a peaceful archeological expedition.

Why not carry out the idea of the investigation for the historical society, and if possible avoid antagonizing the outlaws?

With this idea in mind, he put away the gun and proceeded to fake some letters, purporting to be from an historical society. These he placed in envelopes directed to an imaginary address. He carefully sealed the envelopes, and then tore them open at the ends, as though he had received them in the mail. Not to overlook anything, he affixed to the envelopes cancelled stamps, carefully steamed off other letters. These manufactured communications he placed in his pocket by way of identification.

Then with an ample supply of notebooks and pencils and a box lunch, he set off on what was destined to be a very eventful trip.

Arriving again at the iron gate, he entered as noiselessly as possible; and by the aid of his flashlight picked his way very cautiously along the tunnel. For quite a long distance the way led straight and almost level back into the bowels of the earth. As he progressed, the air appeared to grow more damp and heavy, and the peculiar odor of old underground caverns assailed his nostrils. However, he was agreeably surprised to find that there was no odor of sewage.

In the Sewer

HE reflected that it had been so long since the tunnel had carried any sewage that the natural processes of time had thoroughly cleansed the walls. Probably it had often been flushed out in times of sudden storms. At this thought he was stricken with cold terror. Suppose there should come up a sudden shower while he was far underground. The water would rush into the tunnel. He would have no possible means of escape, and must surely be caught and drowned like a rat in a hole. For a moment he hesitated, but resolved to push on.

By this time he judged he had progressed a quarter of a mile, and must be at least half-way to the point where the tunnel passed the Midland plant. Here he hoped to find something that would prove whether or not this was entirely a wild goose chase.

He wondered who was working in his place at the press, and if he would ever have to go back to that oven of Inferno. Soon he came upon tracks in the mud that most of the way covered the narrow bottom of the tube.

Evidently some one shod in large rubber boots had come along down the tunnel.

But there were two sets of tracks, pointing in opposite directions. The person must have turned around and retraced his steps. This was proof positive that there was some other entrance to the tunnel, and that some one knew of its whereabouts. With this encouragement Brewster pressed on with increased vigor, not forgetting to watch his footing.

At length, when he was commencing to feel that he must have passed the oil plant, he came suddenly upon a jumble of tracks; and his light reflected some shiny particles merged with the mud.

Upon approaching more nearly, he discovered that the floor was sprinkled with flax-seed.

Surely then he was under the mill; and probably hot on the trail of the flax-seed thief who was reputed to have stolen at least twenty thousand dollars worth of the precious material.

About him were only the concrete walls of the tunnel. But above his head he saw that a brick had apparently been removed, for it was now being held in place by two wooden wedges.

The detective was tempted to remove the wedges and the brick, and see if the orifice thus formed would reveal daylight, or any hint of his surroundings. But his training and his natural caution forbade; and he contented himself with making a more careful examination of the tunnel bottom. He now found that there were numerous chips of wood embedded in the mud; and by groping about he found two or three that appeared quite fresh. They were evidently borings from a small bit, about three-quarters of an inch in diameter. It was obvious that this was not a very healthy place to remain; so he decided to withdraw a little way down the tunnel to study his find.

He glanced again at the loose brick, thinking he saw a dim ray of light from somewhere in the distance. After retracing his steps for several rods down the tunnel, stopping to examine the auger chips, he turned off his light, and set to work to figure out what it all meant.

He felt sure that he must be either under or along side of the oil mill, for where else could the flax-seed come from?

The Leak

FLAX-SEED is not a very common article of commerce. In fact, it is seldom seen at all outside of its regular and legitimate channels, and had little or no value except as a source of paint oil.

Could it be that the auger had been used to pierce the wall or floor of a seed bin, and thus tap the almost liquid stores?

No, he distinctly remembered that the bins in the plant had been entirely of concrete, lined with smooth glass. He recalled how one of the shipping-clerks had taken him to see them one noon hour, and he had remarked how shiny and hard the walls looked.

They had walked over one of the large bins on a run-way, and his companion had been at great pains to warn Brewster not to fall in, saying that if he did he would be likely to drown, as the mill hands termed it, before he could be rescued.

He said he had known of quite a number of people losing their lives by falling and becoming submerged in a bin of flax-seed. The seed was so

light and yielding that a man would sink into it, the same as into a bed of quicksand; and would of course be smothered almost instantly. His thoughts returned to the auger.

It was fairly certain that such an instrument could not be used to tap a bin. But if not from the bins, where had the seed come from?

Was it possible that any considerable quantity of seed could be extracted through a three-quarter inch hole? Brewster remembered seeing a large pile of seed under a box-car one time; and upon examination he had found that it was leaking out in a thin stream through a hole so small that hardly more than two or three grains could pass through at one time.

To guard against such leaks the cars were usually lined with paper or cheese cloth.

"Leaking out of a box-car," he said over again to himself; why yes. That was an idea. This leak might be directly under the sidings; in that case, the flax was taken, not from the mill but from the cars.

It was possible that there was where all the thefts had occurred.

The cars were weighed while loaded, and then weighed again when emptied; and thus the amount of seed was computed. If the seed was removed between the times of the two weighings, the loss could not be detected.

How dumb he was not to have thought of that before! Brewster's mind went back to stories he had heard from other detectives about wharf rats stealing oil and liquor from the docks. How they paddled under the high docks in row-boats, and then with long sleeve-encased argers bored up through the dock platform and on through the bottoms of the barrels standing on the docks; thus extracting the fluid and completely emptying the barrels.

Why would not the same trick work with flax-seed, which is nearly fluid in consistency? But how was the thief to locate the position of a car-load of seed? There were surely no windows in the roof of the tunnel.

His brain reeling from the closeness of the atmosphere, he felt in need of refreshment. A couple of loose bricks placed one on top of the other formed a seat. This he covered with a piece of cardboard torn from his lunch-box, to protect him from the dampness. Thus fairly comfortable, he ate his lunch with the aid of his flashlight.

CHAPTER IV

Danger

HE sat for a long time deep in thought; trying to determine on some course of action. At length he looked at his watch. It was already eight o'clock. Soon it would be getting dark outside. He decided to wait until after nightfall, in the hope that the thief would return; for no

doubt the thieving was done in the night.

Composing himself as best he could on the improvised seat with his back to the curved wall, he waited, looking at his watch at what seemed like interminable intervals. The hands of the time-piece moved with exasperating slowness; and he woke once suddenly to find it after midnight.

A deep rumbling, like thunder, filled the tunnel. He held his breath and listened. Maybe a big storm was coming up, with him a full half-mile from the outlet of this prisonlike hole.

But although he listened long, he heard no more; and finally decided that it must have been the noise of a train of cars switching on the tracks above him.

Gradually his anxiety abated; and he nearly fell asleep again, although it was now too cold for comfort. At length he thought he heard the sound of footsteps approaching from afar; and peering through the darkness he saw a dim speck of light away up the tunnel. As it drew steadily nearer, he was able to make out the outline of a man who was holding a lantern as though watching for some mark on the wall.

As the detective had hoped and expected, he came to a halt just where the loose brick and the chip and seed strewn floor indicated earlier activities.

Brewster congratulated himself that the thief took his bearings from markings on the wall, instead of from his own tracks on the floor; otherwise he might have discovered his presence.

The man took something from his pocket and stuck it in the wall; evidently a nail or peg, for he hung the lantern on it. Then from a roll which he carried under his arm he took two sacks, a square of black oilcloth, and some tools; the oil-cloth he spread on the ground.

Brewster quickly recognized the tools as sections of extension shank and sleeve for a boring bit, and a brace. The man proceeded to assemble the sleeved bit until he had a section about six feet long. Then he removed the wedges that held the loose brick in the roof, and removed the latter. He then slid the tube and bit slowly up through the opening; and adding about three more sections attached the brace. This brought the brace about even with his body.

Then very slowly and cautiously he started to bore. Brewster listened intently, but could hear no sound of the augur.

He now noticed that the man was short of stature, but very broad and powerfully built.

After a few turns of the brace it was apparent that the bit had penetrated through whatever it was boring. The man removed the brace, and attached one of the sacks to his belt, holding it open under the tube.

A Clever Theft

THEN he removed the bit, section by section, from the tube, sticking them in his belt. At

length the business end of the bit was removed and a shiny stream followed it out of the tube, falling into the bag. The detective knew instinctively that this was clean flax-seed.

Holding the tube close to his shoulder with one hand and the bag open with the other, the man appeared to settle himself as if for a long wait.

In reality, it was probably only about twenty minutes or half an hour until he commenced to jounce the bag occasionally. This was evidence that it was becoming nearly full. Holding the tube shut with his finger, he manipulated the bag very deftly with one hand. Pulling a pucker-string to close the bag, he laid it down on the oil cloth, and picking up the other one proceeded to fill it.

When this was also full, he produced a small cork from his pocket. This he secured by means of a corkscrew contrivance to the end of his bit, and inserted it in the tube. It seemed to fit very snugly, and considerable pressure was required to force it through.

When it apparently was through the tube, he slightly lowered the whole apparatus, gauging its height by his shoulder. Then he turned the bit to release it from the cork, and took in both tube and bit.

"So that is how he closes the hole up after him", thought Brewster, who had crept so close in order to take in every detail of the proceeding that he was now afraid the violent beating of his heart would betray his presence. In fact he was only a few feet beyond the area of illumination produced by the little lantern.

The man now produced a string and tied the second sack, which like the first seemed to be of about three bushels capacity. Then he replaced the brick in the roof, and with no apparent effort shouldered one of the sacks, and taking the lantern with its peg down from the wall, started back up the tunnel in the direction from which he had come.

Brewster was undecided what to do. For a moment he remained irresolute. Then he determined to wait the thief's return for the other sack, which had been left, protected from the wet ground by the piece of oilcloth.

Meanwhile the detective could determine on a course of action. There could be no doubt that this was the thief he had set out to apprehend.

But how could he hope to capture him, alone and unarmed? Evidently he was a very powerful man, since he had handled the large sacks with such ease.

If he went out to get help or weapons, the man might discover his tracks and escape. It seemed the more reasonable course to try to follow him to his hiding-place, discover where he hid his loot, and later return to capture him.

So Brewster withdrew a little way down the tunnel, and waited. He wondered how the man had been able to locate the freight car.

(Continued on page 364)

"Look out," he warned. A click sounded as the two carbons drew apart, and a turquoise light filled the room.

BLACK LIGHT

HENRY LEVERAGE is one of the most famous scientific fiction writers of the decade. He is the author of "Whispering Wires," the famous book which was afterwards produced as a play and which enjoyed an unusually long and successful run in New York before touring the country. In addition to his many popular novels, he has written more than two hundred short stories.

Soon after the success of his first book, he wrote "The White Cypher," "Where Dead Men Walk," "The Shepherd of the Sea," "The Ice Pilot," the "Phantom Alibi," "Purple Limited," producing a first-class novel nearly every year of his writing career. He is the inventor of various electrical devices for magnetic transmission on automobiles, and an E.E. graduate of the University of Colorado. (1916)

In this story he gives us a fast-moving tale founded on logical scientific principles.



Henry Leverage

TWO men sat in the back room at McGann's. One was a big man with a scar. The other was Rake Delancy.

The big man leaned over the table and coiled three powder-stained fingers about a shell-glass of whiskey.

Delancy glanced down his long lashes and stared into a bubbling circle of imported ginger ale.

"Here's tu crime," said the big man who was sometimes called Big Scar, alias Illinois Pete.

Rake Delancy, otherwise Edwin Letchmere, more

often known as Sir Arthur Stephney, frowned swiftly, as he did most things, and eyed the whiskey disapprovingly.

"A man never opened a safe on that stuff, Scar."

Big Scar flushed with a livid V showing through the stubble upon his jaw. "I'm takin' a vacation, Rake!"

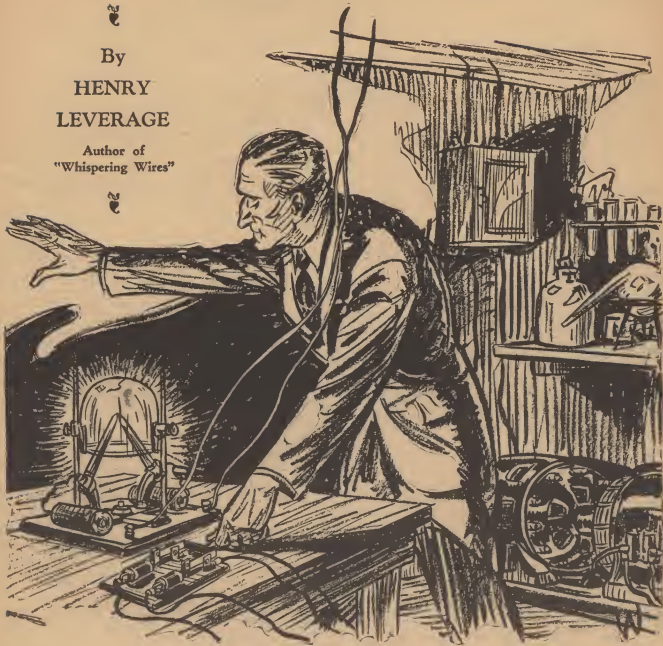
Rake tilted a plaid cap from his forehead and leaned back. He roamed the room with a dart of his light-grey eyes. He crossed one leg over the other and drew out from an inner pocket a platinum and gold cigarette case from which he removed a cigarette that was neither monogrammed or branded.

A crook has a fortune within his reach when an old, old weakness threatens to take it from him. What does "Big Scar" do?

Illustrated by
WINTER

By
**HENRY
LEVERAGE**

Author of
"Whispering Wires"



Lighting this cigarette with a scratch of a match on his heel, he said, between intakes of smoke:

"Speakin' of cribs and crimes—strong boxes and repositories of wealth—have you noticed the news items on the green glow?"

"Green wot?" Big Scar shelved forward a bushy pair of iron-grey brows. He eyed Rake. "Come clean!" he rumbled. "Talk down tu me. None ov that highbrow patter."

Rake doubled the fingers of his right hand and gazed at his polished nails. They were as slender and as almond-shaped as a woman's.

He lifted his stare and locked glances with the big man. "The Green Ray, or Glow, Scar," he said,

"is the very newest thing out in the field of electricity and research. It has been promised for some time. A British review foretold the discovery. It remained for Professor Pascal of Ossining to supply the missing link—a prism made of a rare crystal found only in Boulder, Colorado."

"Wot's that got to do wid us?"

"You remember how we took the big box in 'Frisco with thermite?"

"That was hell's own stuff. I burnt my earth-pieces." Big Scar called his feet "earth-pieces" or "dogs."

"And the cannon-ball safe in Salt Lake City? Do you recall how we cracked that?"

"With soup, dinny an' nitro after yu had painted a back-curtain tu th' jewelry store wot was so real I bumped into it."

Rake rubbed his nails on the palm of his left hand. "The Green Ray," he said, "is the last word in camouflage—a much-worked term. It was discovered too late to be used in the war."

"Wot is it?"

"Absence of most light. Polarized light. A cold light that's green as grass. A vibration from a common center that acts just opposite to the rays of ordinary light."

"I don't get yu."

"You will. Suppose light is caused by heat. Then what would you get by subjecting the same light-forming filament to extreme cold down to a degree or so above absolute zero?"

"You'd get nothin'."

The Green Ray

"OH, yes, you would! You'd get almost negative-light. I understand that Professor Pascal has been working twenty years on the invention. He holds that his discovery would have revolutionized methods of warfare—that men would have fought in the darkness of their own making—that day would have been turned into night within a radius limited by the power of the Green Ray apparatus."

"Wot good would it be tu us?"

"What good was thermite, or the oxy-acetylene blow-pipe or the electric-arc or freezing a strong-box after filling it full of water so that the door will come off when the ice expands?"

"They helped make th' coppers wild?"

"Yes! And the Green Ray will make wilder, Scar. See the game? A Green Ray outfit set down by the door of a bank in the daytime. The switch turned on. The place becomes greenish—a pit where striking a match is like putting it in ink. Nobody can see anybody. We put the cleaner on the vault and go out through a window."

"How far does this green thing glow?"

"Professor Pascal announced at the meeting of the Illuminating Engineers of America that he already had succeeded in getting almost complete darkness within a radius of seventy feet. The darkness thins out then for another thirty feet. That was with the energy necessary to run a quarter-horse-power motor—the same size as was in that electric drill you threw into the Chicago Drainage Canal when we got that Post Office on LaSalle Street."

A steely glitter showed in the yegg's eyes. He upended his whiskey glass and wiped his mouth with his left hand.

"You're a clever brain-worker," he said, "but this green thing is tu damn deep fer me. How can we get one ov 'em?"

Rake glanced around the room and then drew a newspaper clipping from his pocket. He slanted it

toward the light which came from a cluster overhead.

"Planet," he said incisively. "Ad in the *Planet* this morning. Professor Alonzo Pascal—'A.P. of Ossining'—wants a staid reliable butler with references from former employers. English preferred. Happened to see it, connected his initials with his name, connected the name with green darkness and the meeting of the Illuminating Engineers where he spoke. All follows clear."

"Clear as mud!"

"Easy, easy," Rake whispered without moving his lips. "Deduction works for us as well as the police. You are going to Ossining tomorrow and get that job. I'll fix up your references—one from England—one from Canada and one on Plaza stationery."

"Hell no!"

"Oh, yes, you are." The cracksman's voice changed to a metallic command. "You're going up there and be Professor Alonzo's butler. You'll locate his drawings and blue-prints on the green glow apparatus. Perhaps he has a laboratory in the house. We'll steal his idea and rip the country wide open from New York to 'Frisco. We'll make a million in twenty days!"

Big Scar's eyes gleamed with prospects of sudden wealth.

"Why not go up there an' cop th' machine?" he asked. "That would be quicker."

"We don't know where it is, yet. It may be there and it may be somewhere else. It is up to you, Scar, to locate it. Then we'll act!"

"How about clothes?"

"I'll supply them."

"An' th' reference?"

"I know a place on Grand Street where I can get anything printed from a passport to a bank note. I'll have the letters written on three kinds of typewriters and aged with coffee."

Big Scar square-set his jaw.

"Mitt me!" he said, thrusting over two fingers. "I'm going tu blow now, Pal. I'll see yu here in th' morning. I've got a meet with a broad on Third Avenue. 'Mary Pickpockets' is her moniker. Some they call her Melissa, but her name is Mary."

"Look out for the ladies," said Rake as the big safe-blower rose and started for the side door of McGann's.

The voice that rumbled back was also a warning:

"You're no one tu tell me that, Rake."

Rake lifted the ginger-ale bottle from its holder and poured the remains of the fluid into his glass. He rose after drinking the liquid, laid a bill upon the table and glided toward the narrow entrance to the "temperance bar."

Plans Are Laid

HE passed through and out into the street. He hurried south and signalled a taxi three blocks away from the saloon. He spent the early evening

in fevered work. The letter-head forms were upon a press as he left the printing office which was run by a proprietor who scanned the news from Russia like a bomb-thrower.

The matter of the butler's costume for Big Scar was attended to. The clothes were packed into a kit-bag which was plastered with English labels. These objects Rake purchased from a half-fence, half-pawnbroker on the Bowery, who kept open after six o'clock.

He met the yegg at McGann's saloon in the morning. Rake's instructions, shot through clean teeth and narrowed lips, were direct enough to resemble a field marshal's.

"Get up to Ossining with this keister!" he ordered. "Go right to Professor Alonzo and tell him you've come to stay. Force yourself on the job. Telephone me here at the first chance. We must have the blue-prints and specifications of the green glow apparatus by this day, week."

Big Scar already looked the part of an English butler a little down on his luck. His collar was low. His vest was almost white. He had shaved to a blue-quick. His nails were trimmed.

He took the keister, or kit-bag, squared his shoulders and said before he left the saloon:

"E's probably a rum cove, that perfessor. 'E's goin' tu look these phony references over wid a microscope."

"Let him look! They're gilt-edged. The thing to do is to get planted in his house. Look out for the skirts in his establishment. Remember it was a moll who beat us on that New Orleans touch. You told her too much, Scar."

"You're no one to warn me," chuckled the yegg. "It's booze that gets some ov us and it's the' joy broads that get th' others. You're softer than I am when it comes to a real, fine skirt. So long, Pal."

Rake sat down at a table in the back room and reviewed the plan he had laid out for the theft of the blueprints or the salient ideas connected with the green glow apparatus. He mentally pictured the professor as a doting old fool who would be easy. He saw visions of a dash across the continent and a trail of wrecked banks behind him. It was an idea worthy of a master criminal. It would be new. Also, there were no women to frustrate the course of action.

Women, reasoned Rake, were the yeast and the leaven of this life. They were the unstable compound in any crime. A coldly calculated plan might vanish into nothing if a woman were involved. They acted by no set rules. He recalled a number of instances where great jobs had been spoiled by the female element.

There was little Mickey Gleason with his tray of diamonds and Fanny Burke who insisted on wearing them to a Police Chiefs' Convention. There was Saidee Isaacs who sent her unfaithful lover to prison in order to be sure that he was true to her.

It was with relief that Rake learned, in the late

afternoon, that Big Scar had secured the job at Ossining. The yegg's voice was elated as he related his experiences over telephone wires between a Westchester drug store and McGann's sound-proof booth.

"And there's no skirts in th' house," the safe-breaker said. "There's nobody but me, now and th' perfessor—a queer bloke. Something happened, Rake. Every servant blew out ov th' perfessor's shack. There's burnt matches in th' pantry. There's a bloomin' window or tu smashed. There's a part ov a coat hangin' tu a spike on th' back fence."

"He must have turned on the Green Ray, Scar."

"That's it! There's a work-place in th' basement with three bull-locks on th' door. He's roaming around th' house an' shoutin' fer more servants. He must have had five or six. Two maids, a valley, a chauffeur and a chef. They all blew! That's why he advertised in the *Planet*."

"A chauffeur?" asked Rake. "I can drive a car."

The Valley Job

"COME up, then, Pal. Take th' valley job. I'll tell th' old cove I know ov one what worked fer Sir Hector MacKenzie. I'll describe yu. We'll sap th' old guy on the beezee an' cop th' works."

"Easy on that rough stuff," Rake said as the telephone diaphragm clicked. "Go easy, Scar. Tell the professor that there's a high-class valet coming north and you'll intercept him. Tell him not to get any more servants. We want to be alone in that house." Rake hung up the receiver and stepped from the booth. That afternoon he went to Ossining by train.

Gliding along swiftly he covered the mile and a half from the station to Professor Alonzo's mansion which was perched on a hill overlooking the Hudson and the grey walls of Sing Sing.

Rake's costume would have delighted his underworld admirers. His prematurely grey hair was covered by a loud plaid cap. His suit was black. His shoes were square toed and brilliantly polished. The bag he carried had been the property of a broken sport who had been thrown upon the harsh shores of the Bowery.

Rake carried a blued-steel automatic in a sling under his arm. His cuff-links were hollowed out to receive two one-thousand-dollar bills. His fountain pen was a flash light. There were saws, such as are used by jewelers, in his heels. A collection of keys on a ring would open most any ordinary door. The references he carried were calculated to disarm suspicion. One was from Sir Hector McKenzie of Ottawa. The other two went on to state that James Beaucannon was a "faithful valet of the superior order."

"Ah, Joimes," said Big Scar opening the professor's door after Rake had sauntered up a driveway and had shuffled his feet along a leaf strewn porch. "Ah, Joimes, so yu've come?"

"Is the professor in?"

"Right this woy, Joimes, I'll take yu tu 'im."

Rake followed the yegg down a long, chilly hallway and into a room with a low ceiling whose walls were hung with oil paintings.

Professor Alonzo Pascal sat huddled between an open fireplace and a mahogany table that was strewn with sheets of paper and reference books.

Rake saw, with a sidelong glance, a polished head, a beetle-brow, pinched cheeks and lack-lustre eyes set in sunken sockets, like ultramarine jewels.

"The valley!" said Big Scar ponderously. "The man I spoke tu yu about, pefessor."

Rake drew forth his references. He passed them across the mahogany table. Dry fingers sorted them after a hand had hooked a pair of tortoise-shell rimmed glasses upon a hawk-like nose.

Pascal said nothing. He handed the references back to Rake. He turned to Big Scar in the doorway and pointed upward. He swiveled and started fingering sheets of paper with a dismissing gesture.

"A rum cove an' a miser," whispered the yegg as he showed Rake the old valet's room. "A bad guy tu work fer. No wonder th' other bunch blew. He's payin' me th' sum ov thirty dollars a month. He's got a bull-lock on th' wine cellar. It's alongside th' laboratory. There's wires enough running into that place tu start most anything."

"Easy," said Rake. He tossed his bag on a narrow bed and prepared to change clothes by stripping off his coat and vest. "Don't queer the game until I look around. Pascal may have dictaphones all over this house."

A day and a night of inspection passed before Rake obtained a working knowledge of the house and its eccentric owner.

He kept away from Big Scar for fear the safe-breaker might drop an under-world term which would be caught by the professor. He explored the upper floors on a pretense of putting things in order. He found a wall-safe with a three-tumbler combination, behind a picture in the master's room. This safe came open under his skilled fingers after thirty-two minutes of work. There was little in it save a safe-deposit box receipt with Maynard Trust Company printed on the top. The box number was 713, which Rake memorized before he replaced the receipt in the safe.

Two other articles in the repository were interesting. One was the photograph of a girl which had been taken by a photographer in Portland, Maine. The other article was a package of letters written in a woman's angular chirography. They were dated ten years back and showed signs of fading.

Rake Searches the Laboratory

RAKE tossed these letters into the box with the photograph, then, thinking of his hasty action, he arranged them exactly as he had found them and closed the circular door with the combination at the

same notch on the nickel-plated dial. It would never do to be careless in little matters.

Abandoning the upper part of the house, Rake looked over the basement and the main floor of the mansion. He thoroughly examined all of the professor's papers. He opened a score of books on Illumination and Light and Violet Rays and Higher Refraction in Relation to Modern Researches on Polarization.

Rake's fountain-pen flashlight spotted a telegram dated a week before he had arrived at the professor's. This message was from Boulder, Colorado. It stated that part of a Molobenthan crystal had been found. "Prepare to come," the telegram ended.

"Ah!" said Rake, "I'll stall the old boy West so Big Scar and I can prow the laboratory."

He spent two hours over the professor's notes which he held to the moonlight which streamed through a window. The word Molobenthan occurred frequently. It was a kind of crystal sometimes found in Colorado. There were also references to high-frequency generators, amplifiers and negative rays.

Rake tiptoed to the table, arranged the professor's notes, then went upstairs to bed. He planned out each move. They dovetailed. He rose at sun-up and strode through the kitchen where Big Scar was sitting, with an egg beater in his hand.

"See you later," said Rake over his shoulder, "I'm going to the telegraph office."

The professor was deep in his notes at ten A. M. when a messenger boy from Ossining arrived and rang the front door bell. Rake brought in the message, which he had prepared by bribing a night operator who was just going off duty.

"Wire for you, sir," he said, passing a tray over the table toward Pascal. "I signed and paid the boy ten cents for bringing it out, sir."

The professor seized the yellow envelope and tore off one end with shaking fingers. He rose and glanced at a little gold clock.

"Pack my bag!" he ordered. "I've got to go to Colorado."

A taxi churned to the gate after Rake had telephoned the station and the nearest garage. Pascal stood on the front porch. He repeated his instructions as to the ice, the windows and the furnace. He said going down the steps:

"Don't allow any of my relatives to come in the house. I received a letter from Maine, the other day, regarding one of them. Throw her out, if she comes."

Rake showed Big Scar the telegram as the auto honked and was gone. It read:

"Come to Boulder, immediately."

"Just enough and not too much," he said. "It worked!"

The yegg started toward the basement steps.

"Where are you going?" asked Rake.

"Fer some wealthy water from th' wine cellar. We can have a swell party. Old four-eyes won't be

back fer two weeks."

"Hold on, Scar! No wine or women in this venture. Business first!"

The yegg frowned fiercely. He wet his lips and stared at Rake. A flash passed between the two men. It changed to concern as a whistle sounded outside. Footsteps grated across the front porch. The bell rang vigorously.

"Wot's that, Rake?"

Rake crouched and reached for the automatic. He straightened with a sudden laugh.

"Go to the door," he said.

Big Scar arranged the buttons on his white vest and lumbered through the portieres and along the hall. He peered between chintz curtains.

"Gol blyme!" he growled, "it's the postman!"

"Take the letters," said Rake.

A Woman Again

BIG SCAR opened the door. He spoke to the village postman. He closed the door and came through the portieres.

"Says 'Alonzo Pascal,' on the outside!" he exclaimed as he passed over a single letter. "We better not open it."

The cracksmen pinched the envelope, reached over the table, lifted a pen-holder and thrust its thin end beneath the flap. He rolled the pen-holder until the flap was loosened completely.

Big Scar stared at Rake whose darting eyes swept across the message.

"It's from a woman, Scar. I'll read it. 'Betty, whom you have never met, will reach you early tomorrow morning. Take care of her, Alonzo, and listen to what she has to say. We are in dire poverty. Your sister, Grace.'"

Rake dropped the letter to the table.

"A skirt coming?" exclaimed Big Scar.

"Betty is coming. I wonder who Betty is?"

"Sounds like a hick name, Rake."

Rake shot a glance over the library. He remembered the child's photo and the bundle of letters he had seen in the safe in Pascal's room. Was there a skeleton in the old man's closet?

"Get busy!" he said tersely. "Lock all the doors and latch all the windows! We're going to rip open that laboratory and get away with the Green glow apparatus before Betty shows up. We've got all night."

"Let's wait an' see th' dame. Didn't th' scratch say that Betty never met th' old geezer?"

"It says that, Scar, but it doesn't concern us. What did I say about molls and this job? They're out of it!"

The yegg shrugged his shoulders and started examining the catches to the library windows. He passed into the hallway and placed a chain on the door. He made the rounds of the lower floor of the house and then came back to Rake.

"All set, Pal!" he said. "Let's go an' see what that miser has in th' basement. Me fingers have

been itching tu rip off those bull locks."

Rake led the way into the hall and to a door beneath the front steps which opened upon a short landing above a narrow flight leading to a concrete floor.

He whipped out his fountain-pen flashlight as Big Scar felt around in the gloom. The three locks to the laboratory were a kind known as 'thiefproof.' Rake waited until the yegg had struck a match and touched it to a gas jet. He pocketed the fountain pen flashlight and stared upward. He pointed a steady white finger.

"Power meter," he said. "See, it is for power service only. Those leads run into the laboratory."

Big Scar scowled at the three locks belligerently. Rake glanced around the floor, stepped to a furnace room, groped about and returned with a short bar of iron.

"Goin' to jimmy th' hasps?" asked the yegg.

"No! Look out! I've got the key to these locks.

Dutch Gus taught me this trick."

Rake turned the lower lock upside down, thrust two fingers through the hasp and struck a sharp blow on the bottom. It flew open. "Next," he said. "There's nothing man ever put together that another man can't take apart."

Big Scar swung open the laboratory door and glared inside.

"Smells like acids," he said withdrawing his head.

Rake flashed his pocket lamp and advanced slowly. He snapped on an electric bulb which was set in a stone wall. He studied the room. It was disappointingly small. A workbench ran across one end. A table stood in the center. A rack of tubes, retorts, chemicals, phials and glass-stoppered bottles, was against the dividing wall that separated the laboratory from the wine cellar.

Objects began to stand out as he focused his eyes. He saw a rotary-transformer in one corner. Leads ran from this up to a junction box. Spirals of insulated wire looped over the table upon which was set an ebony-based instrument that resembled a flaming arc with solenoids and green carbons and a zinc cross to which was attached fine silk-covered wire.

Cold Heat

"I KNOW what that is," Rake said pointing to the cross. "That's the greatest anomaly in electricity. A cross of two metals which produces cold instead of heat."

Big Scar worked his brows up and down. He roamed the room with his eyes. "Looks like a place where they make th' queer," he ventured. "Maybe th' old miser is a coiner."

To Rake, who had studied electricity for the purpose of outwitting bank protection, there was no great mystery in Pascal's machine to produce a green glow, save one element. That was a hood which could be raised or lowered over the contact

(Continued on page 360)



Harold Roller, confessing robberies to "Talkie" machine.

P. & A. Photo

Science, the Police and the Criminal

by Ashur Van A. Sommers

WHEN Hermann Oberwader, professional safe-cracker and hold-up artist, nosed his way stealthily through the offices of the Mengel Jewelry Company, he had no presentiment of danger. The "cop" on the beat had been "attended" to, the janitor of the building lay unconscious and bound in the basement, and there were five clear hours ahead of him in which he could work slowly and methodically, short circuiting the standard burglar alarms attached to the massive safe, whose door was lighted by the usual single electric lamp, which is kept burning before safe doors to allow regular inspection by watchmen or policemen as they peer through the glass windows cut in the doors of offices for that purpose.

As Oberwader knelt before the safe and laid out his professional tool-kit, he could not know that the innocent electric lamp had actually detected his presence, and, in conjunction with its ally, a selenium cell, was at that moment informing Police Headquarters of his attempted burglary.

Thus science anticipates crime as well as detects

it. Because Oberwader's body interrupted the beam of light that was thrown by the lamp onto a selenium cell concealed in the wall, an electric current passing through the cell was cut off, thus releasing a switch that sent an alarm to Police Headquarters. For selenium is a conductor of electricity only in the presence of light and the safe-cracker's shadow on the cell instantly lessened its conductivity, reducing the strength of the current that passed through it in series with a small electro-magnet. When the current was switched off from the latter, it released a soft-iron armature which sprang back against two electric contacts, thus completing the distant circuit which sounded the alarm in the Police Station. So Hermann was interrupted by several burly patrolmen long before he had solved the problem of opening the safe.

Such a device was recently demonstrated at the exhibition of the Physical and Optical Societies at the Imperial College of Science and Technology, South Kensington, England. A photograph of this demonstration is reproduced on the next page.

When the ray of light from the lamp to the cell is broken, the detector will either communicate directly to the police, or will sound a local alarm, automatically recording the time of its break on a specially constructed clock.

Science Defeats Science

AS we have related, the safe-cracker who was caught by this device went to jail. But the triumph of detective science was short lived. For hardly a week had passed before a fellow workman or craftsman of Oberwager walked into the same jewelry concern, stayed there a few hours, and walked out with a pocketful of diamonds. Knowing that a shadow cast by his body would break an electric circuit, all he had to do was to carry his own electric lamp and as he walked past the spot where the selenium cell would likely be hidden throw his own light in that direction. In fact, all that the second burglar had to do was avoid throwing a shadow when he intercepted the tell-tale beam of light. This he did by carrying his own lamp and using it when necessary.

But this is only a minor incident in the general warfare between the Law and the Criminal. We have read a great deal recently of the radio patrol wagons and police cars employed by Police Commissioner Rutledge in Detroit, Michigan. This, up to the present date, has proved a most effective method of preventing crime, or capturing a crook within a few seconds after he has perpetrated a robbery or murder.

All police cars are fitted with radio receivers which are permanently tuned in to a broadcast station at headquarters. An idea of this latter station may be obtained from one of the photographs which shows two New York patrolmen operating such a station. As Patrolman Riggs listens to the call for help, his companion, Patrolman St. Jacques broadcasts the alarm over

the air. New York is not yet as far ahead as Detroit in this system.

As the police cars cruise around the city in their appointed precincts, they are constantly in touch with Police Headquarters. Moreover, they report regularly from designated stations, so as to assure Headquarters of their being on the job, and that they have not been attacked by gangmen. The efficacy of this method may be illustrated by a case in Detroit, in which a hold-up man entered a house near Cass Avenue. A passerby, seeing a flicker of light against the window pane, telephoned into the Police Station just on chance that something might be wrong. The alarm was broadcast, picked up by a police car

cruising around within two blocks of the house, and the burglar captured within 12 seconds after the alarm was sent in by the passer-by.

In another case, a man was captured after murdering his fellow gunman, even before he had time to throw away his gun. "Split-second arrests," Police Commissioner Rutledge calls them, and indeed, it looked for some time as if the criminal was at last limited in his activities.

But what has happened in this battle of science? London, England, whose Police Broadcast system is sec-

● **W**HEN we speak of science in relation to crime, we usually think of scientific instruments and methods used by the police to capture and convict a criminal. We are apt to overlook the fact that there is nothing to prevent the intelligent criminal using all the resources of science in his battles with the law, and that he is not handicapped by red-tape nor officialdom, such as often exists in police organizations. We are apt to forget that the criminal, while mentally unsound in a larger sense, may possess an extremely fertile brain and brilliant talents. Before a particular branch of science can be applied to the detection of crime, police authorities must be consulted, permission must be obtained from various officials, appropriations must be submitted, passed upon, and approved: in fact, the machinery of justice and police work is too often slow moving and conservative.

● The criminal is handicapped by none of these things. If he wishes to employ science in the perpetration of a crime, all he has to do is to purchase the necessary equipment, and USE it. Moreover, for each advance made by the police, the criminal can make two or more, without hindrance by any official red-tape. Just how far crime-land has accepted science as an essential element in its battle against society, is described in the following article.



The electric-light "burglar detector."

P. & A. Photos



Police broadcasting alarm in New York City.

ond to none, found itself completely disorganized the other day when a gang, bent on a series of robberies, constructed their own broadcast station, tuned in on the police wavelength and blotted out the latter entirely, so that no understandable orders could be broadcast to the police cruisers. Again criminals had "gone the police one better" in the employment and application of science.

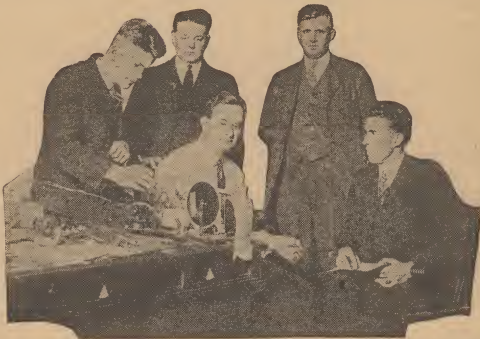
How do criminals cooperate to use science in their work? We must remember that criminals, professional criminals, regard their operations just as a bricklayer or an accountant regards his profession. It is believed that in the London case, a band of ordinary safe-crackers and burglars had engaged the services of an experienced radio-mechanic, who had inadvertently slipped into some small criminal misdeed. Giving him a large salary, they employed him just as the police employ experts in the various sciences in the detection of crime. Operating under one executive mastermind, a series of burglaries, robberies of diamond merchants and fur stores had been planned out in advance, and notice given to affiliated gangsters that on the payment of a fee, they would be told the time and night on which the police radio would be put out of commission.

Criminal Radio Experts

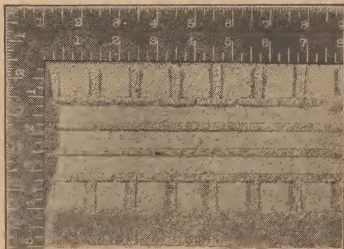
ALL the robberies took place on the same night, the London police cruisers wandering around

the streets wondering what had gone wrong with their receiving sets. Naturally, it was first imagined that unprecedented static was interfering with their radios; only after the reports of the robberies came in next day, did the police authorities discover that crime-land was alive to science and scientific methods and the value of organization.

We must confess that the police are finding some difficulties with two more inventions. One of these is the lie detector. We illustrate this apparatus being used on E. Drew Clark, when he was on trial for the asserted murder of George E. Schick in San Diego, in the notorious Schick disappearance mystery. At the time, this machine was loaned for the purpose by the Los Angeles Police Department. One of the foremost exponents of the lie detector in this country is August Vollmer, now of the Chicago University, Chair of Criminology. Most of his work was performed in Berkeley,



E. Drew Clark, on trial for murder, is examined by the "lie detector."



How to take "finger prints" of automobile tires.

California, where he has a record of many successes.

But judges and juries are prejudiced against the use of the lie detector, and also against the use of the motion picture record of a confession. It was thought that with the use of the Talkie in recording confessions, police methods would be changed, and a rogue's gallery of talking films be brought into court at trials. We show a photograph of Harold Roller, a milk wagon driver, whose confession to 21 house robberies was made into a "talkie" by the Philadelphia police. In the group shown, are, left to right, Lieutenant of Detectives Benz, Roller, the prisoner, Inspector of Detectives Connelly, Director Schofield, and Superintendent of Police Mills.

Beating the Lie Detector

BUT even as the lie detector comes into greater usage, criminals are anticipating its employment and preparing methods to "beat the game." The lie detector, as we know, depends upon emotion reactions of a prisoner to questioning, these reactions being detected by changes in heart action and glandular action. The criminal, so long as he was ignorant of operation of the machine, could be easily trapped into incriminating reactions. But now he simulates fear, holds his breath, increasing the percentages of carbon dioxide in his

blood and stimulating his cardiac reactions and respiration, and generally draws a red-herring across the trail of truth.

My object in writing this article, is to demonstrate to both police and public, that science is equally at the service of the criminal and the police, and that it is not entirely impossible that the former may outstrip the law unless a definite program of advancement is arranged, and the dangerous potentialities of science in the service of the criminal, acknowledged and prepared against.

Recently a new bureau of scientific criminology has been established to identify automobile bandits. This has been innovated by Dave Chapman and Captain Norris Stensland, of Los Angeles, California. Photographs are made of tire impressions and then, with rule and calipers, careful and exact measurements are taken of the tire-prints. Finally a composite of both factors is made, manifesting the type of tire, the kind of car on which it fits, and possible ownership. An extensive file and records of all makes, patterns and sizes of tires used are kept at headquarters. One of the photographs shows a "finger-print" of a tire tread, labelled and identified.

But there will be no millennium in this fight along the borders of crime-land. It is a perpetual race between the policeman and the criminal, and victory goes to the one who keeps ahead in the application of science in all its branches.

THE END

NEXT MONTH—

The story you have been waiting for:—

THE ELECTRICAL MAN

by Neil R. Jones

A smashing tale of fast-moving action—drama—suspense—and swift adventure. A real "action" story with a fighting motive. Look for it in the May issue of SCIENTIFIC DETECTIVE MONTHLY—22,000 words of scientific adventure and crimino-detective action.

Science clashes with science in this swiftly moving tale, crowded with breathless action. Try to identify the man in the black mask!

RAYS of DEATH

● **W**HEN will the world realize that guns and bombs as weapons of murder are being superseded by instruments twice as deadly, and ten times as difficult to defend oneself against?

● We read in the daily press, that scientists have proved the theory of atomic destruction of matter. Yet only a few years ago, science teachers taught us that matter was indestructible. Do we realize that each new accomplishment of science, besides helping mankind, also gives the educated criminal a new armory to war against unprotected civilization? And that, in order to combat these new perils, science must come to the aid of the detective, guiding and assisting him in the detection of crime, and the conviction of the criminal?

● Radium, for instance! A boon to the sick, yet at the same time, a terrible menace in the hands of an evildoer. In this story Mr. Curry, who is a writer too well known to need introduction to our readers, develops an extraordinary plot, full of sound, practical and every-day science.

CHAPTER I

Lawson Is Called Back

DETECTIVE MORAN'S steel-grey eyes looked straight ahead as he climbed the flight of stairs which led to the lighted door. Various odors, strange to him and lumped by the detective under the descriptive name of "stinks", reached his nostrils. He squared his broad shoulders and took the derby from his bullet head, displaying short-clipped brown hair.

"Lawson!" he called.

"Here! Is that you, Moran?"

Young Lawson, a research chemist who had formerly been a member of the police organization, but was now working for a private company, held out a hand stained yellow and brown by chemicals and sat his visitor

down in a nearby chair.

"Gosh, Lawson!" exclaimed the detective. "We



The black figure made a sudden backward move.

By
TOM CURRY

Illustrated by PAUL



Struck by a mysterious
power in the hands of an un-
known enemy — how can
Mallory be saved?

surely miss you. Too bad the red tape put you out."

It was red tape alone which had caused the department to oust Lawson. The great chemist had been working at a small salary, but with unlimited facilities, in his own laboratory in police headquarters. But, since he had no regular duties but simply came and went as he pleased, the ire of some hard-boiled official was arous-



ed, and he had been discharged. The work of the department was done by city chemists and doctors; liquor analyses, forensic medicine and bacteriology being outside of the realm of the common detective. The inspector who had brought the valuable Lawson into the organization, and allowed him free run of the city's facilities, had been reprimanded.

Moran admired the quality of Law-

son's mind too much to allow the chemist to drop out of his busy life. He visited Lawson whenever possible and, though the chemist was often irritable and refused to be disturbed while he was working, Moran did not take it amiss. He knew Lawson liked him.

The scientist was pale, with an acid scar under his right eye; a slender man, with delicate, long fingers and light blue eyes. His head was large, and his brown hair in a state of perpetual disorder.

"I've come on business," said Moran delicately: "I know we have no call on you any more, Lawson—it was a dirty trick to let you out that way—but I thought, if you weren't too busy—"

Moran stopped, evidently embarrassed. Lawson laughed: "Go on, Moran! You know I don't care about that. I had a good time while I was with you and enjoyed the work we did together. While I wouldn't care to be bothered here by most of your colleagues—I'm too busy for that—you're welcome to come and take a chance any time if I can be of assistance and can spare the time."

"Yes, I thought you'd feel that way. I'm out of my depth now, and I hate to admit it to the chief. You know, when you were helping me, I solved two or three chemical cases. That's why they put me on this one."

"What's happened, then? A poisoning?"

The detective's brow corrugated in thick lines:

"No. It might almost be an accident. I've been out there all day. Was put on special detail. The local police are working on it, but headquarters sent me to see what I could do. Have you ever heard of radium?"

Lawson laughed: "I should say so!"

"I mean, do you know much about it? Is it inflammable?"

"Scarcely that. It burns itself up. The chemistry of the radium elements is magnificent, Moran. You see, the metal is decomposing itself, but the action cannot be hurried or retarded. Radium salts—the metal itself is scarcely known—give off three rays: the alpha ray, which consists of positively charged helium*—that's used in dirigibles now instead of hydrogen; the beta rays, negatively-charged electrons or units of electricity; and the gamma rays, which are very similar to X-rays. The alpha rays will illuminate a zinc-sulphide screen—which is how we make our luminous watch and clock dials. In 1898—"

"Cut it out!" begged Moran, mopping his brow: "I'll talk and you can figure it out in your own head. Do you read the papers?"

A Curious Explosion

LAWSON shook his head: "Not every day. I've been up here now for three days and haven't

*Helium is one of the elements first discovered in other planets or stars. As early as 1868, the presence and existence of helium was discovered in the sun by spectroscopic examination of the sun's light. It is to this fact it owes its name; *helios* being the Greek word meaning sun. Its atomic weight is 4.0, as compared to hydrogen's 1.008; but its lower efficiency as a gas for dirigibles is offset by non-inflammability. It was finally isolated by Ramsey in 1895.

been out. My food is brought in to me and I take a nap on the couch once in a while. Why?"

"Because you must have seen the account of the terrific explosion. The Malloradium Company's plant blew up like a leaky still at two A. M. Monday night, and the whole building was demolished. Luckily, the plant stands off by itself in a large field, or there would have been a lot more damage done. The fire has been extinguished after a hard fight. Two watchmen inside were killed, and two who were patrolling the grounds were knocked for a goal. They're able to talk now, and I had a word with them. Do you know what they say?"

"No. Moran, you seem excited?"

"Sure I am. The watchmen say they couldn't see well Monday night because of the fog!"

Lawson, smoking a cigaret, watched his friend's face. Moran half smiled, half frowned: "Listen, Lawson. There was no fog on Monday night! It was clear, moonlight, stars shining as pretty as could be. Everybody in the neighborhood says the same thing."

"Maybe the watchmen were raving."

"No. They both claim the same thing. Whoever blew up the plant—and no doubt it was blown up—got in under cover of the fog and entered the building. The two watchmen inside were taken care of, bound and left to be blown to hell. We found some parts of the poor fellows."

"But where does the radium come in?"

"I'll tell you something about the company. There's a man named William Keating out there, almost crazy, picking over the ruins. He thinks the explosion might have been accidental, spontaneous combustion or something like that, and that his precious radium may be lying in there somewhere. There was an ounce of the stuff in the company's safe, in the basement. Well, this Keating has been trying to dig out the safe and has got burned and made himself a nuisance to the firemen. The owner of the works, Byfield Mallory, has been out there, too, raging around. D'you know how much he says that little bit of white powder is worth?"

"About two million dollars," said Lawson, after a rapid calculation: "Radium's selling at \$70,000 a gram—or was, the last time I heard. But I thought the Belge concern had a monopoly on the stuff? Didn't know the Americans were making any just now."

"I couldn't tell you about that. But two million dollars for a few pinches of stuff seems like a Chinaman's dream to me. Could it be true?"

"Surely. It takes some nine hundred processes to get a few milligrams of radium out of several tons of uranium ore, either pitchblende or carnotite. Pitchblende is found in Europe, the carnotite found in the American West."

Moran held up his hands: "You can see how I feel. Keating and Mallory are just about crazy, and I can't get much out of them. Keating won't believe the radium actually is stolen. He keeps saying no one could sell it without being caught."

"That's true. Anybody who turned up with an ounce of radium would be investigated at once. Only hospitals, research laboratories and, perhaps, a few factories which manufacture such things as airplane struts or luminous dials could have any use for radium. Doctors usually borrow it from radium banks."

"Well—I hate to quit on this case. It would be a feather in my cap if I could find that radium. I've got men searching the ruins now; but the fog the watchmen mention made me wonder if there wasn't something more to it than there seems to be. By the way—the experts claim that the explosion looks like T.N.T. had been used."

"Trinitrotoluol?" Possibly. Now, I'm working on something, but am at a phase where I can leave it for a few days. I'll meet you here tomorrow morning, and we'll go out and take a look. Where's the factory—or what's left of it?"

"Out in Queens. As I told you, Mallory owns a tract of flat land out there, and it was there the radium plant was built."

"All right, then. I'll see you tomorrow. S'long."

Moran took his leave, to go home and snatch a few hours sleep. Hope was in his heart, hope that he might be the one to solve the case. He had been assigned to it on special detail, and wished to keep his reputation clear as a solver of chemical mysteries. In this, Lawson was his chief aid. Moran would place the facilities of the great organization at the chemist's call, and Lawson would direct the inquiry through the detective.

CHAPTER II

\$2,000,000.00 GONE

THE spring sun shone brightly, as Detective Moran, escorting his friend Lawson, stepped up to the wire gate of what had been the Malloradium Company's plant. A railroad switch ran in from the nearby main line; and two or three cars, which had come from the West with the carnotite ore from which the radium was extracted, were lying as they had fallen from the force of the explosion.

Piles of brick, plaster, and burned material, vats, furnaces and broken glassware were strewn about in profusion. The amount of labor necessary to obtain the radium was so immense, and the chemicals so numerous, that it was actually cheaper to transport the heavy ore from the West than to take the chemicals to the uranium deposits. To produce a single gram of radium bromide, five hundred tons of ore had to be treated with some five hundred tons of chemicals and a Niagara of distilled water.

Moran was admitted at once, Lawson trailing after him. Firemen and police stood about; and inside the inclosure were several cars, among them a black limousine.

"That car belongs to Mallory, the owner," said Moran, indicating the limousine: "There he is, himself, over by those tubs. That's Keating with him, the smaller fellow."

Lawson looked at them. Mallory, the owner of the demolished factory, was a huge, bluff man, with iron-gray hair and a red face. The chemist, watching him, could see the temper which Mallory was venting on his manager. Keating, black of hair, was of slighter build; just now he wore a worried look.

The detective and his friend made their way past the cars towards the group by the ruins. As Lawson, picking his way among the bits of brick and wood which had been placed there by the terrible hand of the explosion, passed the limousine, he glanced up.

The chauffeur was on the seat, but Lawson did not look at the driver. He caught sight of the white face of a girl who was staring at the ruins.

She was beautiful. Her face, though pale, was exquisite in appearance, and her great dark eyes lighted her countenance. She was slight of figure, but clothed with a simplicity which was elegant. Lawson, whose heart had begun to leap, stopped beside the car. He saw dark curls under her small hat.

For a moment, the chemist, usually so business-like, stared at the girl with what might have been rudeness, had it not been for the honest admiration in his gaze.

Moran had gone on. He was talking, thinking Lawson was still at his side. The girl, seeing the detective speaking to empty air, looked round and caught sight of the chemist, struck dumb by her beauty. For a moment, a surprised little smile appeared on her red lips; then she flushed and turned away.

The detective discovered Lawson's absence, and turned to see where the chemist was. But Lawson was already running after him.

They stopped for a few moments at the edge of the ruins.

"Some job, eh?" said Moran, almost proudly.

Keating, the manager, perceiving Moran, hurried over to him.

"Mr. Mallory's here," he said: "I've been hoping against hope to find the radium in the vault. But the vault has been smashed, too. The men have just reached it. Thirty grams of it—imagine! Worth over two million dollars."

Moran strode over to where the big bluff owner of the works stood frowning at the debris. Mallory gave the detective but a short nod, and then turned on Keating, as the manager returned to his side. Lawson was at his heels.

"What about the bank at the new hospital, eh?" roared Mallory. "Where's my \$100,000 guarantee that I'll have the stuff delivered, purified, ready for use, next Wednesday?"

* Trinitrotoluol (or toluene). A high explosive made by treating toluene with nitric acid—thus forming the chemical compound $\text{CH}_3\text{C}_6\text{H}_2(\text{NO}_2)_3$. This substance, generally referred to as T.N.T., is used for filling high explosive shells; for it melts readily (at 81.5° Centigrade) and can be poured from one vessel to another rapidly and in safety.

"Mr. Mallory, it must be in there somewhere! The safe is on its face; it looks smashed, but once we get it turned over, we may find the radium. I've sent for more tools. Let's hope it's there."

"And suppose it isn't?" growled Mallory: "What a fool you are, Keating! You may be a good chemist, but you're a rotten executive."

Keating hung his head: "If the worse comes to the worst, sir," he said, "we can get ten grams of radium chloride, enough to fill the hospital order, from Dr. Leopold of the Belge Company. He has been in touch with us before. You remember he sold us five grams two years ago. He'll let us have a commission, I'm sure."

"Curse it," exploded Mallory, unappeased: "Some carelessness of yours has caused this."

Keating shook his head despairingly. "I'm sure we'll find it in there somewhere," he said: "Who would steal radium? It could not be marketed. It would be useless to anyone."

But Mallory only grew angrier and angrier. The ruthlessness of the big man was evident in his face, the ruthlessness which had brought him from the ranks of life to the top.

Byfield Mallory was a mineralogist by training, but a roving disposition in his youth had kept him moving. He had prospected for some time, in the Bad Lands of the West. With a man named James Tholl, who had perished in the desert, he had discovered carnotite ores of high radium content, and he had fought tooth and nail against anyone who had tried to interfere with him. He had left all behind; and now, some twenty years later, he was owner of his own company and his own ore deposits.

The big man paid no attention to Moran and Lawson, after the contemptuous short nod to the detective. He stormed at Keating; and at last his anger grew out of bounds, and he shook his fist in the frightened manager's face.

Then Lawson, watching the rage of the man, heard a soft voice at his elbow.

"Father!"

It was the girl who had been in the car. She gave Lawson a fleeting glance. And then, veiling her dark eyes with those long lashes, she stepped past the chemist and Moran and placed her hand on her father's arm.

"Yes, Edith. Just a minute."

"Don't lose your temper, father. Mr. Keating is not to blame, I'm sure. If the radium's in the ruins, he'll get it out."

"He's a fool," growled Mallory.

But his daughter pulled at his sleeve, until the big fellow turned and accompanied her to the limousine. The motor was started, and they were driven away. Lawson, looking after her, saw Edith's face framed in the rear window for a moment, before she turned back to the task of placating her father.

CHAPTER III

The Mysterious Fog

"WHEW!"

Keating turned to Moran: "What a hell of a temper the boss has!"

"You said it," replied the detective: "Why don't you slam him one on the kisser?"

Keating smiled, as though he might have enjoyed doing so; but then, he froze suddenly, and the worried look reappeared on his face. A workman was coming towards him.

"Well?" asked Keating eagerly.

"Got it turned over, Mr. Keating."

The manager shot away in a flash. Moran and Lawson followed to the edge of the ruins, and climbed over the foundations. The smell of chemicals was very strong.

Keating, in the midst of a group of workmen, was rummaging in the debris. Lawson and Moran picked their way towards him.

They were in the hole which had once been the basement of the factory. The workmen had unearthed the safe which had been used as a storage space for the radium—worth a fabulous sum and yet of such small amount that a man could hold it in the palm of his hand. But one would not hold it in the hand, by any means, if he valued his skin.

"It'll be in a round lead box," Keating was crying to the men: "Look, damn you, look! It may be anywhere around here. It's not in the safe."

The doors of the safe had been blown off and, though there were many papers and various things of value within the twisted steel box, still Keating did not find what he was after. The radium was gone.

"Somebody blew hell out of it, before they let the factory have it," said Moran, looking at the safe with an expert eye.

"If it was burglars," said Lawson, "they'll be damn sorry if they carry that radium around! It'll burn them to bits. Unless expert chemists did it."

"They couldn't sell it, I tell you," cried Keating frantically: "It would be worthless to anyone!"

Lawson was silenced.

"What about this phoney fog?" asked Moran: "There was no fog that night, but the watchmen say fog kept them from seeing who came in and blew up the works. They heard a dull explosion inside, they say, and started to the factory to investigate it. They were on the outskirts of the ground, patrolling. Luckily, for them, before they got too near, the whole business went up. The burglars must have planted their T.N.T. and then blown the safe. When they got the radium, if that was what they were after, they slipped out under cover of the so-called mist, and set off the big charge by battery, blowing everything to hell."

But Keating was too perturbed to take in much of the detective's explanation.

"I've got to go and tell him I can't find the stuff. It must have been stolen—but I can hardly believe

common burglars would take radium, unless through ignorance, of course. He'll be angry. But I'll have to go and tell him I can't find it."

"We'll go with you," said Lawson suddenly.

Moran nodded. The two followed the manager to his car, and were soon driving out into Long Island, where the mansion of Mallory, the Radium King, stood on his great estate.

The Radium King

THE Mallory place consisted of some thirty acres of landscaped grounds. The mansion was of stone, low and massive, surrounded by large trees and fence hedge. Winding gravel drives and paths, running off in every direction from the house, were well kept. The main entrance was through an iron gate where stood the lodge of the gate-keeper, and led under an archway of huge elms. The grounds touched the Sound at their northern extremity.

Moran was somewhat struck by the richness of all this. Keating had seen it before and it had become commonplace to him. What he worried about was, not so much the house, but the man inside it.

"He'll be very angry," he kept saying nervously; until Moran growled something about "Telling him to go to hell!"

"Is Mrs. Mallory alive?" asked Lawson, as the manager of the Malloradium Company swung his car around the vast circle before the porte cochère.

"No. The boss is a widower. His wife died eight years ago. Miss Edith keeps house and has charge of the servants. And she knows her business, too. The household is well run. Nobody else except the servants—there's ten of them—lives here. None of Mallory's relations can stand him, he's got too hard a temper. But the girl knows how to manage him. He's not so bad in a way—though he could be a lot better."

Keating drew his car up before the steps. He rang a bell, and a butler opened the door. Lawson and Moran followed the manager; the detective with his matter-of-fact air, though the usual look of abstraction of the chemist was strangely absent as Lawson took his seat in the great reception room.

Lawson seemed to be watching for something, or someone. Moran found it necessary to nudge him; for the chemist did not move, even after the butler returned to lead the way to the second floor.

Keating stepped inside the study—for they were being received in Mallory's apartments.

The Radium King was seated in a dark-blue arm-chair, his heavy head bowed on his chest, waiting like a lion in his den for his victim. He glared at the three, singling out Keating.

"Well?" growled the big fellow.

Moran twiddled his thumbs, watching keenly but failing to catch Mallory's eye. Lawson, whose abstraction had returned to him, waited.

"I must admit, Mr. Mallory, that the radium bromide seems to have been stolen. There is little

doubt left in my mind, though I hate to admit it, that burglars entered the factory, cracked the safe and stole the lead box containing the radium salts; then blew up the factory to cover their tracks. I have searched over every foot of the debris, but the container is not there. It might have melted down in the heat, of course; but some trace of it would have been found. Anyway, it is obvious that the safe was blown open."

"And what do you expect to do now, my fine manager?" gritted the radium king.

Lawson, who had a sense of humor, could scarcely restrain a smile as he saw Keating's wince of terror.

"Why, there's only one thing to do: allow Detective Moran, and the private agencies, to search for the radium."

"And do you suppose such numbskulls can find such a thing and would know it if they did?"

Moran flushed to the roots of his short-cropped hair. Lawson smiled with his eyes.

"We must be patient," said Keating, swallowing.

Mallory rose and towered over the three. "Curse it," he cried, "curse it! Two years, Keating, two years of work and investment! Fifteen thousand tons of ore, fifteen thousand tons of expensive chemicals, a hundred thousand tons of distilled water, to obtain that pinch of salt! I've mortgaged everything I've got, to beat out the Belge Company.

A Secret Process

"THE new Mallory process, my secret process which made it possible to compete with the foreign monopoly: where's it all now? Damn you! And am I to sit here and twiddle my thumbs, while a few fools look for radium burglars? How about my hundred-thousand dollar guarantee and only four days to deliver ten grams of bromide, purified, to the new Boston hospital? What are you going to do?"

The Radium King stormed up and down the room, cursing, shaking his great fists, his face red with rage.

"I've fought them all," he bellowed: "I've beaten them all; And now—this!"

A light knock sounded on the door. Lawson, nearest it, froze suddenly in an attitude of listening, to shut out the mighty curses of Mallory and hear who might be outside.

"Father!"

It was the gentle but firm voice of Edith Mallory. She turned the knob, and stood there, clad in white, Lawson, looking at her expectantly, was delighted to receive a look of recognition. But then she passed him, and went to her father.

"You mustn't go off into these terrible rages," she admonished: "Sit down in your chair and talk quietly."

He obeyed, grumbling. "Fools," he muttered.

Moran stepped forward, clearing his throat. He was taking charge of the situation.

"Well, Mr. Mallory. I'd like to ask you a few questions. Sometimes we're not as stupid as we seem. If I can get some idea of the situation from you—you may be able to give me a lead to work on. First, have you any enemies?"

Mallory glared at the big detective. "Thousands," he growled at last.

Moran was nonplussed. He scratched his head. The girl's laugh tinkled and Moran flushed.

"Do you think such a man as I can go through life and make no enemies?" went on Mallory: "Do you think a man attains my present position without leaving strewn behind him those who have opposed him? Do you think wealth comes to a man because he's kind and polite and lets the other fellow trample on him?"

"No!"

It was Lawson who answered. He stepped into the breach, left by the perplexed Moran.

"Mr. Mallory," he said gravely, "what you say is quite true, but it does not assist us in our investigation. If you want Detective Moran and his organization behind you in your search, you must help us. Can you think of anyone who might have done this to revenge himself upon you? In this question, Moran is quite right. He must have some lines along which to work. As Mr. Keating says, it is highly improbable that any common burglar would steal radium. For where would he sell it?"

Lawson's air of command, and the girl's appeasing presence, calmed the Radium King.

"I had forty chemists and fifty workmen in the plant," said Mallory slowly: "Keating can tell you their names. All the American competitors are out of the field. They were forced out three years ago, as I was, when the Belge Company entered the market. The Belge Company has a practical monopoly at present, because of some high-grade pitchblende uncovered in Africa. It was only through the discovery of the new Mallory process—which is secret—that I was enabled, two years ago, to begin production once again. This process cuts out what were processes number 765 to 853, and 878 to 901. As these were extremely expensive parts of the extraction, I have been able to put radium on the market at the same price as the Belge Company, seventy thousand dollars a gram."

"Then the Belge Company would profit if by chance your supply of radium was lost?"

"Yes! Undoubtedly! But while such an act is possible, it is not probable. Dr. Felix Leopold, who represents the Belge Company in this country, does not like me personally—and I don't like him—but I don't believe he would stoop to such a thing. He is an agent, pure and simple; the Belge Company is well known throughout the world, and is an honorable concern. Besides, if they wanted to fight me, they could undersell me. In all my years of manufacture, even when I was racing tooth and nail with six other companies for supremacy, no such act has ever been perpetrated."

"Then you believe it may be an act of private revenge?"

Mallory shrugged: "How can I say? My mind has been shocked by the disaster. I can think of many who might wish me bad luck, but not one who would do such a thing. As you may have gathered, I have contracted to furnish the new Boston Hospital with ten grams of radium bromide. It is to be delivered Wednesday. I have a hundred-thousand dollar guarantee posted that it will be ready."

The Radium King had little more to say. Keating, the manager, had the names of the employees of the company and these were people whom Moran might investigate.

"Shall I get ten grams of radium chloride from Leopold, then?" asked Keating, as they took their leave.

"Yes," said Mallory wearily, closing his eyes: "Yes. You can get it in shape by Wednesday. The X-Lab will let you have a table and facilities. The other orders are farther in the future, and can wait. Perhaps the stuff will turn up. Offer \$25,000 reward for the return of the radium intact."

The three left the big man then, and entered Keating's car.

CHAPTER IV

Dr. Leopold Enters the Case

"WHAT was this secret process Mr. Mallory spoke of?" asked Lawson.

"Oh," said Keating, "I meant to tell you about that! When you mentioned the fact that someone might have blown the factory up for a grudge, and we were talking it over with the boss, there came to my mind the facts of the new Mallory process. Well, one of our young research chemists, a man named Charles Sommers, invented it. He stumbled on it while working with radium salts. Mallory kept him at research work, as he did several of us, including myself. Sommers is brilliant, a great worker. He has been under contract with Mallory for five years now."

"Here's the point: Sommers' contract called for only fifty dollars a week, as he was just out of the University and might not be of any account. He discovered this process and had to turn it over to Mallory. It became of vast importance to us. Mallory took the process, gave it his own name, and started manufacturing again. Sommers was still working for us at fifty a week. Mallory did not raise his salary or give him any reward. Sommers, naturally, must have been angry and hurt. But he has worked along with us just the same. He did not stand out in my mind as a possible—but no, you'd not think Sommers would do such a thing. He's a scientist, pure and simple, and would never become a murderer and thief. No!"

"Well—let me have his address," said Moran: "Here, when we get to where we're going, you can give me a list of your employees and I'll investigate them."

"By the way," said Lawson, "where are we going now?"

Keating was crossing the Fifty-ninth Street Bridge. "I'm going to see Leopold, of the Belge Company," he said.

"That's another bird we want to see," said Moran. "Ain't he the representative of the company that has had a monopoly on the stuff?"

"Yes. His offices are on Forty-sixth Street."

Dr. Leopold was a nervous little man, with a scrappy moustache. He spoke with a slight French accent. He smiled cordially at Keating, and acknowledged the introductions to Moran and Lawson. He held the latter's hand for a moment, and looked at him keenly.

"Not the Dr. Lawson who published such a competent treatise on 'Gold Colloids and their Behavior in Magnetic Fields'?"

Lawson nodded. Moran's eyes opened. He knew that Lawson had a name in the chemical world; but it was not often that anyone knew enough about chemistry to appreciate his work.

Keating was surprised, too. "I never connected you with that, Dr. Lawson," he said: "I suppose my mind's been off key since the calamity at the works. You heard of that, of course, Dr. Leopold?"

Leopold nodded gravely. "Come inside."

There were two or three stenographers and an office boy in the ante-room, and the doctor led the way into his own sanctum, a room filled with charts, technical books and a chemical bench in one corner, covered with apparatus and small vials of chemicals.

"I still play with chemistry," said Leopold, smiling as his visitors viewed the bench, "though I am little more now than a high-powered salesman. You know, Dr. Lawson, it is necessary to educate our limited clientele as to the uses of radium."

The four were seated. Moran took out a cigar, bit off the end, and settled himself to listen to long names which to him were so much Greek.

"Dr. Leopold," said Keating, "you have heard of the blowing up of our plant. It was done with trinitrotoluol, we believe. Two watchmen were killed. We hoped to locate our radium bromide in the safe; but when we dug it out of the ruins, we found that the safe had been blown open and the radium bromide extracted. The new Boston hospital has ordered ten grams from us. Our plant is demolished, our radium gone; we must fill our order in Boston, however, or lose one hundred thousand dollars. Now, the market for radium bromide is seventy dollars a milligram, is it not?"

Sommers Says "No!"

LEOPOLD nodded gravely: "Yes. But, if you take ten grams from us, we will let you have it at sixty-five dollars per milligram. That will be a brokerage profit of fifty thousand dollars on the ten grams."

"That is quite fair. Mr. Mallory has authorized me to deal with you."

Dr. Leopold rose. "Tell Mr. Mallory how sorry we were to hear of the disaster, will you not?" he said: "One of our executives, Mr. Stephen Tollerman, is here on a visit. He is in the next room, and I will be glad to call him. He would be pleased to meet you, Mr. Keating, and you also, Dr. Lawson. Perhaps he can help us arrange the details of the order."

Tollerman was introduced. He was a tall man, with grey-streaked hair, blue eyes and brown cheeks.

"Mr. Tollerman was one of the discoverers of the pitchblende ores in Africa," said Leopold.

"Well—how soon do you think I can have the radium?" asked Keating, after the amenities of the introductions had passed: "Is it chloride you have?"

"Yes. You know, it is easier to extract the metal in the form of chloride from pitchblende; while the bromide is naturally obtained from carnotite. At present I have no supply on hand; but I can get you as much as twenty grams within eight days. I must send to our bank in Belgium for it."

"Eight days!" cried Keating: "Why, Dr. Leopold, by Wednesday next, we must deliver ten grams to the new Boston Hospital or we lose a hundred thousand dollars! That's our guarantee which is posted to insure delivery of the radium."

Leopold looked at his colleague, Tollerman. The latter shook his head. "The metal can be rushed here by the first boat," he said: "Unfortunately, there are no airplanes to carry it. It will be Saturday next before we can get it. It is unfortunate."

"Mr. Tollerman is right," said Leopold: "Had I anticipated anything of this sort, I would have sent at once for metal, on hearing of the explosion in your plant but we were certain you would locate your radium bromide in the safe."

"But you offered us, on brokerage terms, ten grams of radium chloride not a month ago," wailed Keating: "Where is that?"

Tollerman and Leopold exchanged glances again. Then Leopold spoke.

"It has been rented, Mr. Keating. A research chemist came in and offered us five thousand dollars for the use of our ten grams of salt for two weeks. He said he was in the midst of an experiment. I rented the radium to him, and he has it now."

"What was his name? Where is he?" cried Keating.

"His name is Charles Sommers. He said he had worked for you. He came in only yesterday, and I delivered the metal to him this morning. I asked him about the explosion. He said he hoped you would find your radium bromide in the safe."

"Sommers!"

"Don't you think the Boston people would give you a few days leeway?" asked Tollerman: "We'd like to make the sale to you very much."

Keating shook his head dismally: "The man in charge up there doesn't like Mr. Mallory. He'd be only too glad to make us pay the forfeit. But I can scarcely believe Sommers could have—what did he look like?"

"He's a personable young man," said Leopold: "Of medium height, with fair hair and blue eyes."

"That's Sommers," cried Keating. "The dog!"

Telephone calls—one by Leopold to Charles Sommers, the discoverer of the secret Mallory process, and one by Keating to Mallory, who exploded over the wire—found Keating with permission to deal with the young chemist, and Sommers in Leopold's office, looking cool and collected.

"Sommers," said Keating sternly, "you have ten grams of radium chloride leased from Dr. Leopold. I ask you, for the good of the firm, to turn it back and allow us to fill our order at the new Boston Hospital, where a bank is to be established. This you knew as well as I. What a coincidence that you should come here and rent the only purchasable radium at hand!"

Keating's sarcasm did not touch Sommers. He coolly returned the manager's gaze. "I'm working on something now, in my own laboratory," he said: "To give up the radium now would throw all my experiments off."

Keating grew angry. He stormed at the chemist who had formerly taken his orders. But Sommers was obdurate, he would not give up the radium.

"We stand to lose a hundred thousand dollars," cried Keating, again and again.

At last, Sommers said: "I'll tell you what I'll do, Keating. Give me fifty thousand dollars for my trouble, and I'll deliver the radium back here, and you can buy it!"

Keating, after some argument, called Mallory again. His ear burned as he heard the Radium King's opinion of the matter, but Mallory finally gave his consent.

"We'll just break even on it," wailed Keating. "We save our guarantee, but we lose our percentage for the sale. Sommers gets that."

So the matter was arranged. Sommers promised to return the radium by Monday, and Keating, as a parting shot, angry and frustrated, formally discharged the chemist.

"But my contract," grinned Sommers: "You'll have to pay me fifty a week for the next year anyway."

"All right," shouted Keating: "We'll see! You've held us up, Sommers, but you can't get away with it!"

"Don't forget to bring a certified check Monday," said Sommers mockingly: "And give the boss my love."

CHAPTER V

Clues to Spare

DETECTIVE Moran and Young Lawson, the chemist, sat together in the quiet restaurant, having a belated supper. They talked of the

radium theft, and of the many leads which Moran saw with his detective's eye.

"This Sommers now," said the detective, over his steak, "he seems sore as hell at Mallory."

"And no wonder," said Lawson: "But you must watch him, Moran."

"I've got all these fellows listed, who worked there. Some one of them ought to lead us to the thief or thieves."

"The radium should turn up," said Lawson: "Moran, at first, I saw nothing in this case; but I am willing to stay with you now."

"I thought you might be interested," said Moran.

The detective did not guess Lawson's eagerness in the case. He, busy with his work, had failed to catch the young chemist's look at Edith Mallory. But Lawson, whose heart sang strangely for him, had a vision of the young woman before him.

And now, picking at his food, he contemplated ways and means of seeing her again. As Moran's side partner, he might have access to the Mallory home.

The case had not yet shaped itself in his mind. There were too many clues to follow, all vague.

"Radium must turn up, Moran," he repeated, time and again: "No one could have any use for it that I can think of. Save perhaps a research chemist, who could not afford to get it. But that's a wild hypothesis! Take Sommers, for instance. Have you set men on him?"

"Yes. And I've sent shadows to keep tabs on the movements of the whole damn personnel of the factory!"

"The radium should turn up," said Lawson again: "It is only a small inch of white powder, Moran; but if you were to hold it in your hand for any length of time, it would cause your internal organs to alter, and would burn you with ulcers, fatally in the end. Your blood would become anemic, for it attacks the corpuscles and burns good flesh as well as foul. In the hands of a skilled worker, the rays are of immense value in treating malignant growth, cancer, tumors and goiters. Small tubes of glass, with a tiny amount of radium salt, are placed in a wound or on it; the dead tissues are destroyed. But the worker must be protected. Lead-impregnated rubber gloves, a lead screen of some centimeters in thickness, must be used. The gamma rays, which are powerful X-rays in effect, will plow through centimeters of lead. Yes, it is dangerous stuff for a common thief to carry around with him. The stolen radium was in a round lead box, five centimeters thick. In the block of lead were small holes, into which the glass tubes, each containing a gram of the salt, were placed. The cover fitted tightly over the bottom, and the whole was placed in a leather case. The radium could not escape."

Moran shook his head. "It's wonderful stuff," he said: "Somehow, I hope, when I find it, it's still safe in that lead box!"

"Moran," said Lawson, leaning across the table, "a skilled chemist took that radium! I'll bet you a nickel I'm right. It would take such a man to handle it. And someone with a grudge, too, or he would not have destroyed the plant!"

"Enemies? Sure!" Moran grinned. "Thousands! Far as I can make out, everybody dislikes old Mallory. He's a son-of-a-gun! Don't like him myself."

"It might have been Sommers, of course," said Lawson: "And then again, it might have been any of the others who worked for him. But watch Sommers carefully."

"And what about Leopold?"

Lawson was silent: "I don't know. As the thief, he seems actually impossible to me. I don't think the Belge Company would go to such extremes to ruin Mallory. Besides, if they knew the radium was gone, they would have had some at hand to fill the order."

"Maybe they're in league with Sommers."

"Possible. But not probable, because why should a man like Leopold bother to shake Mallory down that way? He could easily have raised the price a little, if he wanted some for himself. That's all. But better keep your eye on Leopold as well."

"It's some job," said Moran, shaking his head. "There's too many clues; but none of them, except perhaps Sommers, points anywhere. However, I'll get to work right away."

"How about the fog?" asked Lawson.

Moran threw down his napkin with a curse: "I'm going crazy, trying to get a start on this business!"

The Marauder

YOUNG Lawson, research chemist of the Mar-gear Society, stood with one test tube held over another. It was the middle of a busy day. Outside, in the general laboratory, the rank and file of the chemists worked on milk cultures and general analysis. Lawson, in his own room, a privileged being with a free hand to experiment as he would, was strangely disturbed.

And, for the first time, it was not the atoms and electrons which held his interest; no, he was upset that he could not concentrate on them as he should.

The radium case, on which he had promised to help Moran, had baffled him; for there was no way to get a start at working.

However, Lawson, whose single passion had been chemistry, found the science less absorbing than formerly. Between the retorts and reactions had interposed the face of a woman. Lawson, supposedly hard at work, was idling his time away in dreams of Edith Mallory.

He had seen her but twice. For three days now—it seemed three eternities to him—he had not had a glimpse of her.

Detective Moran had been out working, directing the search for the radium thieves. Lawson had had no word from him; for, when last they had

met, Moran had said he would call on Lawson when he got a workable clue. And no word had come.

The chemist poured slowly from one tube to another. Red turned to green, then to deep blue. He cursed and threw both tubes in his waste barrel. A graduated tube, in which was a pink liquid, with a rubber hose clipped shut at the bottom, occupied him for a few moments, but he was restless. His hand trembled, and too much liquid entered the beaker.

"No use," he muttered. He stood for a time in rever; then he evidently came to some decision.

Taking his hat and top coat, he left the laboratories, and went out into the sunshine. He sighed deeply, and started towards the river. For the rest of the afternoon, he alternately walked and sat on benches, thinking of the girl.

Towards seven o'clock, he remembered he had not eaten all day; so he dropped into a restaurant and drank coffee. A phone booth in the place invited him to call Moran—for Moran might have some news of Her. But Moran was not in; had been out all day, according to the sergeant who answered.

Darkness had fallen when Lawson, the man of science, finally walked with faltering steps to the Pennsylvania station. A Long Island train took him to the town on the outskirts of which was Mallory's estate.

He hoped to have a glimpse of the girl. Perhaps, she would appear at a window, might even come out, and, seeing him, speak to him. He sighed. His brain called him a fool; but he could not resist his desire at least to see the house in which the idol of his dreams lived.

It was some time before he could muster up his courage to go by the grounds of the estate. There was a light in the lodge, at the big gate, and the chemist shunned this place. But there were smaller side gates in several spots, and Lawson, taking his courage in hand, slipped into the grounds.

The big mansion, set back among the trees, was lighted in several of the downstairs rooms. Mallory's apartments, in the rear, were dark.

He crossed the lawn stealthily, ashamed of himself, his heart beating hard. He had no right there, he knew.

Would she appear? A glimpse of her at the window and he would have felt rewarded.

He stood within fifty yards of the mansion, and tried to muster up courage to go and ring the front door bell.

So absorbed was the chemist in his thoughts, that he did not see the stealthy dark figures which crept towards him across the lawn skulking in the shadows of shrubbery, crawling almost on their bellies across the open spaces.

Suddenly, he was leaped upon from behind, and with a stifled cry, he felt himself borne to the grass and held in a grip of iron.

The Gunman

"KEEP still, you," growled a heavy voice, and the muzzle of a gun was jammed into his ribs.

They searched him professionally, but found no weapons. Lawson, chagrined, at the mercy of the men who had leaped on him, found all his natural fear of the attack submerged in the ignominy of his position.

More figures were running across the lawn. Lawson, with infinite relief, heard a familiar voice.

"What have you got?"

It was Detective Moran. The sturdy figure stood over the prostrate Lawson, as flashlights illuminated the chemist's face and form.

"Well, for the love of heaven!"

Moran stared at his friend for several seconds. "Get out of here," he snarled at his men, who had brought the chemist down: "Don't you know Dr. Lawson?"

The others retired. Moran pulled Lawson to his feet and brushed off his clothing. "Fools!" he repeated.

Lawson laughed: "I'm the fool, Moran. I did not know you were out here. What's up?"

"We got a call last night that marauders were around the estate," said Moran. "Mallory asked for police protection. I thought we'd caught something when we got you."

"Marauders?"

"Yes. Mallory and his daughter were out. They sometimes go to the city together, to a show. One of the servants, who happened to be in the front of the house to answer the telephone, heard noises outside. He looked out, but could see nothing because of a fog that had come up."

"A fog, Moran?"

"Yes. I thought maybe, being near the water, there'd been one here; but nobody in the neighborhood saw any fog. However, this footman says there was a fog and he couldn't see anyone outside. He went through the house downstairs, but found nothing. He returned to the servants' quarters and got the butler and a couple of other fellows, and the four of them went outside, and they all claim they were in a thick mist. Finally, they went upstairs. They came to Mallory's quarters, and found distinct signs of an intruder having been there. A window was unlocked—a window which gives out onto that low balcony you can see at the rear of the house. But they didn't catch anybody. They reported the incident to Mallory when he returned, and he called me and asked me to send some men out."

"Was it burglars, do you think?"

Moran shook his head slowly: "They didn't steal anything, if it was. Of course, they may have been frightened off."

"And then," said Lawson, "there's the matter of that fog, eh? Strange it should happen twice!"

Moran nodded gloomily: "You said it. It's got me."

"Anything else?"

"No. I haven't got the full reports in yet. I've got men on the whole shebang. But tell me—how is it you're out here?"

The detective looked searchingly at his friend. But the light was dim, and the detective missed the flush which Lawson could not restrain.

"Oh—I came out to have a look around."

"I hoped maybe you had something and were looking for me."

"No." Lawson came to a sudden decision: "Moran," he said, "appoint me a shadow, will you? Let me keep my eye on the mansion. I'll work for you out here."

"Huh? Why should you waste your time fiddling around here?"

"I'd like to, that's all."

"Well—if it'll give you any pleasure, stick around. I'll not be out much. Was just getting the boys set. We'll watch for a few days and then, if we don't catch anybody, we'll figure it as burglars."

"Did you find any footprints?" asked Lawson.

"Oh, a couple, in the grass below the balcony. But whoever it was traveled on the gravel paths. He left no trail."

CHAPTER VI

The Lead Box

"SUBJECT came out at 8:45 A.M. Walked to bakery, where he purchased ten cents' worth of rolls. Returned home. Greeted by wife, blonde, about twenty-six. Remained indoors all day, in the rear of house, where he has a chemical laboratory. At six P.M., appeared with wife; and the two went to supper, both in high spirits. Then to theater, a musical comedy. Went home and retired. Met no one. Nothing unusual from regular routine."

"Can you beat that?" said Detective Moran, despairingly, handing the sheet to his friend Lawson.

Lawson looked over the operator's report. Four of Moran's best shadows, man-hunters who missed nothing that went on, had been set on Charles Sommers, the young research chemist who had shaken down the Malloradium Company for fifty thousand dollars. For ten days, he had lived quietly at home; experimenting in a small laboratory of his own in the attic of his suburban home; going out occasionally, but acting in no way suspiciously.

Likewise, the other employees who had worked for Mallory had been shadowed. It had taken a hundred men to investigate them; and of all these possibilities not one had proved of value.

Nothing had come of the watch outside Mallory's home. Lawson had spent most of his waking time on the grounds. He had been rewarded several times by a sight of the young woman, Edith Mallory. Once she had seen him, during the day, and had smiled on him.

But, now, he no longer had any excuse to visit there, for Moran had called off his shadows in disgust. The marauder had failed to walk into the trap set by the police.

"And Leopold?" asked Lawson, who was seated on Moran's desk, swinging his legs as he watched the lines of worry on his friend's brow.

"Hell," exclaimed Moran: "Nothing there, either. Leopold has not stirred from his regular life. Sommers went and got his check Monday from Keating. He met Leopold and Tollerman and Keating. I was hidden, to observe them. Sommers laughed in Keating's face. Now, plenty of employees of Mallory have been moving around. One chemist, named Smythe, went all the way to Buffalo, and I thought we would get going; but he was only after a new job. It was the way with all of them; they were after a new place to work. That was natural enough, since they were thrown out by the wrecking of Mallory's plant."

The radium bought from the Belge Company and obtained from Sommers, had been delivered on time to the new Boston bank, at the hospital; so that Mallory had saved the forfeit money.

"What's Keating been doing lately?" asked Lawson.

Moran grinned: "Still looking for that radium in the ruins. Guess he's been over them fifty times! He'll never find it."

Just then the phone rang at Moran's elbow. The detective picked up the receiver. He listened for some time.

"Well, for the love of heaven!" He hung up and turned to Lawson. "They've found the radium! Keating just called me to tell me he discovered the box within a few yards of where the blown safe was."

Two hours after the news from Keating of the finding of the radium, Moran, accompanied by Lawson, stepped from their car to the front door of the Mallory home. They were taken upstairs to Mallory's apartments.

The Radium King was strangely subdued. He was almost polite to his visitors; if a quiet voice and a disposition to listen without interrupting can be termed politeness.

Keating, radiant and happy, was there. In his hand he carried a round leather case. Inside the case was a heavy lead box, with walls some two inches in thickness, and inside the box were holes into which fitted small glass tubes containing amounts of white salt.

"Boss, it was wonderful," he cried: "I swear I looked there a hundred times before! But today, I was poking around as usual, and I happened to turn over a burned board; and there, lying right in front of me, was the case!"

"I'm very glad," said Mallory: "I've not been well lately, Keating. The loss of that radium would have just about ruined me. Now we can fill our other orders. Do you think there's any chance of

the Belge Company buying the extra ten grams from us?"

"I'll see. They might help us out."

"Let's hope so." Mallory turned to Moran: "I'm very much obliged to you for your assistance. I'm sure you've done everything possible to help us. As there were no thieves to catch, it's no wonder you didn't do it."

"I'm happy to have been of assistance," said Moran, "and glad you've recovered the radium. We'll call our men off now. Any time we can help you out again, let us know."

Lawson, standing quietly behind his friend, had a sinking of the heart. While he tried to rejoice that the radium had been found, still he knew that he would no longer have any excuse to see Edith Mallory.

The girl came into the room, as the three were about to leave. Mallory, who had, on the previous occasion when they met there, been too wrought up to remember small things like the social amenities, introduced his daughter Edith to Moran and Lawson.

CHAPTER VII

A Fresh Stimulus

THE chemist took the small hand she graciously held out to him, and a thrill passed through him.

"I'm happy to know you," she said.

Words, which could express so little! Lawson mumbled incoherently. He found courage to look into her eyes. He caught the kind gleam of them, and the recognition of himself.

"Come along, Lawson," called Moran, from the doorway.

Keating was jubilant. "Everything's O.K. now," said the manager: "The boss will have to admit I was right, and so will you, gentlemen. I knew no one would steal radium."

"Well," said Moran, "it sure looked like it for a while. It's still a puzzle to me."

"What are you going to do now?" asked Lawson.

"I'm going to put this radium bromide in a safe place," said Keating: "In the thickest, best-guarded vault I can find. Then I'm going to go and see Leopold and find out if he'll refund us our money on the stuff we bought from him. I think he will. The Belge Company has always been every decent in its dealings, and will hardly refuse my request. I hope the boss gives me that \$25,000 reward."

Lawson was sad. He had met Edith Mallory, only to lose his opportunity of seeing her again. He had no excuse now to go to the mansion, and there was little chance that he would ever meet her in the natural course of events.

Then the chemist, about to enter Moran's car, had an idea. Keating! He would become friendly with the manager, and in that way, he might be

able to establish contact with Edith Mallory.

"I'll see you again soon, Moran," he said, hurriedly.

The surprised detective watched Lawson as the latter spoke a few words to Keating and then climbed in the manager's car.

"He's been acting funny lately," thought Moran. But cases had been piling up and the detective knew there was plenty of work awaiting him at headquarters. He started off, waving goodbye to the two behind him.

Keating, talking rapidly, well pleased with himself, drove into the city, and stopped at a bank vault, where he deposited the lead box. Lawson, tagging after him, accompanied him next to the offices of the Belge Company.

Leopold was there, and when Keating and Lawson were shown in, he received them cordially.

"We've found our radium," said the manager.

"That's good news. I thought you would." Leopold was glad: "It's an unlikely thing for anyone to steal. But how can I help you now?"

"I've come to see about getting a refund, selling you ten grams of our stuff," said Keating.

"H'm. It's disappointing to lose a sale; but I think it would only be ethical for us to consider it. I will have to cable abroad and confer with Tollerman about it. I think it can be arranged. That is, we will take ten grams off your hands. Naturally, you lose your commission."

"That's fair enough. Let me know what the result is as soon as possible."

"Yes, surely."

Keating was a busy man. Lawson was forced to leave him soon after, for the manager was oblivious to the chemist's desire to become better acquainted.

Lawson returned sadly to his rooms.

He was again called from his laboratory, two days after his introduction to, and what he feared would be his last sight of, Edith Mallory.

"Hello, Lawson, 's Moran."

"Yes? What's the trouble?"

"Plenty! Keating was just here."

"Well?"

"Can you come over? I'm at the office."

"Yes. I'll be right there."

In Moran's office, the detective grinned at his friend the chemist:

"We were right, after all. That radium was stolen."

"I thought it was found?"

"So did everybody. Keating did, Mallory did, I did and you did! D' you know what happened? Keating gets the Belge people, Leopold and Tollerman, to say they'll take back ten grams to make up for what Mallory had to buy from 'em. So he delivers the ten grams this afternoon; and he calls me to report that on analysis the salt in the lead case was nothing but salt!"

"You mean common salt?"

"Yeh!"

"Sodium chloride!" Lawson passed his hand over his brow: "Heavens, Moran; what do you make of that?"

"Don't know. Can you figure it? It wasn't possible for the Belge Company to crook Keating, because he himself was right there while they looked over the stuff!"

A Cruel Trick

LAWSON, with knitted brow, rose and paced up and down the room. "This will be a blow to him—and to her," he murmured.

"Eh?" said Moran.

"Nothing."

For several minutes, the chemist ruminated: "Weren't there men watching the ruins?" he asked.

"Yes. A couple of guards."

"And did they have anything to say?"

"Keating never questioned them after he found the radium—or thought he had found the radium. But today, I went and located them. D' you know what they said?"

"Yes," said Lawson suddenly: "They said that the night before Keating discovered the radium, there was a thick fog over the ruins. And there was no fog, anywhere else."

"You're right."

Lawson ruminated for some minutes. Then he turned on Moran. "Moran," he said, in a grave voice, "there is an evil spirit operating in this case. What a cruel trick that was, to plant the radium case with common salt! It is consistent, however, with the operations of this unknown person, who all along has played his hand well. Moran, I'm going to find him."

"That's the way to talk," applauded the detective: "I'm putting men back again on Sommers and the rest. 'Only—well, if Sommers had planted that stuff, we'd have trailed him to the works and caught him red-handed! See? This only throws us out of gear all the more."

"I will find him," said Lawson. Then he added, under his breath, "for her!"

It was late afternoon. The red sun was sinking behind the trees of the Mallory estate as Young Lawson, in a hired cab, drove up to the great gate and was admitted by the lodge keeper. A few moments later, and he was inside the reception room, waiting with strangely beating heart.

A light step sounded from the corridor, and then Edith Mallory stood before him.

"Hello, Dr. Lawson."

She held out her hand and smiled on him. He could not speak for a moment as he looked at her. It was her air of quiet assurance that had charmed the chemist as much as her beauty; that, and an attraction towards her which amounted to magnetism.

She sat down, and he took a chair near her. She waited, after a conventional remark or two on the

weather. Lawson at once came to the object of his visit.

"Miss Mallory," he said, trying to be as business-like as possible, "I don't know whether you know just who I am or not."

"Mr. Keating told me something about your work and reputation," she said. Then she added, smiling, "I asked him about you."

Lawson flushed with pleasure; but he strove to stick to facts. "I have come to help your father and you in this business of the stolen radium," he said: "I want to get all the facts possible from your father. Now that the thief or thieves, whoever they were, have appeared again, it is obvious that some malignant entity is working against your father. Anyway, I am sure we have to do with a man who knows chemistry, and knows your father and hates him. The first, I believe because of the way the radium has disappeared, and the planting of common salt in the lead box. What use, beyond the fact that the loss of the radium bromide might ruin your father financially, the thief intends to put the radium to, I cannot even guess. It can't be sold, that's certain. It's value is too fabulous for the thief to realize even a fraction of its worth. He is evidently an enemy of your father, for the spite of returning to plant the sodium chloride; raising your father's hope and then dashing it to the ground, and the fact that marauders have been upon the estate, point to this."

The girl listened gravely.

"I fear the same thing," she said: "Some person wishes to ruin father. But why did the marauders come here? The theft of the radium is enough to cause bankruptcy, the expense of its extraction is so great. What I fear now, is that this enemy may have come to kill father!"

Her fists were clenched. She was nervous, under her forced calm. Lawson—who had thought of the same thing, but had not wished to alarm her to too great an extent by telling her that he believed the marauders had come to kill her father and been disappointed because Mallory was out—could only nod.

"Well," he said, reassuringly, "the thing to do is to set guards about the house again. Do you think I might speak with your father now?"

The girl shook her head: "Father is not well. The worry and anxiety about the radium has, I believe, made him ill. So our physician, Dr. Morse, thinks, too. He has dermatitis and has grown so irritable that I'm the only one who can talk to him."

"The radium should turn up some time," said Lawson. "The burglar could scarcely use it."

She nodded. She rang a bell and ordered tea. The two chatted of this and that, and the young man was pleased to discover that Edith Mallory knew a great deal of chemistry. She had taken a course in the university in science.

Two hours passed so quickly, that Lawson was

amazed to realize that it was dark, and his wrist watch said seven o'clock.

"I am going to begin my own investigation," he said: "You see, while I work for a private company, Moran lets me assist him sometimes. I have solved a case or two for him."

But he had already told her the history of his eventful chemical life. She smiled on him as he shook her hand.

"If I can help you, at any time, don't hesitate to call me," he begged: "Here are my office and home phone numbers. I'll be glad to assist you at anytime."

She thanked him, and accompanied him to the door. The chemist walked down the gravel drive which led to the gate, with wings on his feet, and a song in his heart.

CHAPTER VIII

More Guards

THE chemist went to Moran's office, and waited until the detective came in.

"What's up?" asked Moran.

"I was going to ask you the same thing," said Lawson smiling: "Moran, my theory is that the man or men who were out there that night on the Mallory place, came to kill him. I don't believe you ought to leave it unguarded. There is Mallory's own staff around, but you know they can't watch a place the way your shadows can. Send out Harte and Ulman."

The detective was unconvinced: "I figure it was just some second-story man," he said. "I've got Harte and Ulman on young Sommers. You know, we've sent out warning to all the possible places where radium might be sold, to let us know if any which can't be checked turns up."

"That's right. But better send your two best shadows out to Mallory's. I want them there."

Moran scratched his head. "You been out there?"

"Yes. Two hours."

"Did you see Mallory?"

The chemist flushed slightly. "No, Moran. I was talking with Miss Mallory."

It was a long time before the detective spoke. Lawson sat under the light, and Moran, after looking at him for some seconds with a puzzled face, began to smile. The smile started with his eyes, then spread to the cheeks, then to the lips, and finally became a broad grin.

He slapped his leg, and drew back his head. "Now I've got you," he cried delightedly: "By golly, it's funny I didn't guess it before!"

"What?" said Lawson testily.

"Go on! You can't kid your old friend Moran. You're sweet on that girl!"

Lawson was irritated, but he knew that to allow Moran to see it would only please the detective. He waited until Moran's mirth had subsided.

"Whether that's true or not, Moran," he said, "we're got to find the radium."

"All right," said Moran. "You've helped me plenty, and now I'll help you. I'll send Harte and Ulman out there tonight. No one shall touch a hair of her head if I can help it."

So the two shadowers were dispatched to the Mallory estate.

* * * * *

"Now, listen, Moran," said Lawson: "Somebody is trying to get Mallory. That's almost obvious. They have broken him by stealing this radium, and now I think they want to kill him. They were disappointed when they got out there and found him not home."

"None of these fellows we're watching was out there," said Moran.

"Then it was not one of them. But it might have been an accomplice."

"What do you suppose all the talk about fog was?" asked Moran.

"That is the simplest thing in the whole mystery," said the chemist: "Why, Moran, what do you do when you have a criminal bottled up in a building and want to get him out without exposing yourselves?"

Moran slapped his knee. "Why, of course! You mean it was just a smoke screen?"

"Yes, that's it. That's another reason I say a chemist is at work. But we must not let anything slip, Moran. There are only a few works where such gases are made. Look them up, and see if you have any luck that way. But, personally, I believe the criminal manufactures the stuff himself. It's easy enough. Silicon tetrachloride, for instance, is a colorless liquid, but when it comes into contact with air, it gives off thick white fumes. The water in the air decomposes it, forming silicon hydroxide, a white substance, and hydrochloric acid. Also, if dry ammonia is mixed with the silicon tetrachloride, more white clouds will be formed; because the hydrochloric acid unites with the ammonia to become ammonium chloride. This and titanium tetrachloride were much used in the war to lay smoke screens, Moran; the smoke screen is also used by you fellows to protect yourselves in the open against desperate bandits. What would prevent the bandit turning about and using it to protect himself?"

"Makes no explosion when it starts, either," said Moran: "Well, that's that. I'll look around and see if I can locate anybody who's been buying smoke."

"Probably the thief makes it himself. As I said, I believe we have to do with a man familiar with chemistry."

The Call

SEVERAL days had passed. Moran had reported no luck with his investigations. Harte and Ulman had not been able to catch any trespassers on

the estate, but, acting under orders, they alternated with another pair of shadows who watched during the day.

Lawson had been in touch with Keating. He had requested the manager to rack his brains, in the effort to think of someone who might be so bitter an enemy of Mallory as to plot destruction and death for the Radium King.

It was the absence of a visible motive which blocked the investigators at every turn. There were plenty of men, like Charles Sommers, who might wish Mallory bad luck; but no one could be traced who would go to such lengths to get revenge.

Lawson had promised to find the stolen radium; he had told Edith Mallory that he would do so. He had been out to the estate twice again to search for traces; but the ground had been trampled by many feet, and nothing remained, even if there had been anything in the first place. He had spoken with Miss Mallory on both occasions, but her father had been growing worse.

Lawson sat in his bachelor quarters that night, his feet on his desk, slumped down in an armchair. His head rested on his breast. His thoughts reviewed the radium theft, but always returned to the girl.

It was about eight o'clock. The phone bell rang, and Lawson, picking it up from its stand, answered.

His heart leaped when he heard the voice of Edith Mallory.

"Dr. Lawson?"

"Yes. Miss Mallory?"

"Yes. Dr. Lawson—" there were tears in the voice—"I—I am calling to ask your help. Father is worse. The physicians say he may die. I—I don't know what to do. He has growing sores on his body and his heart is in terrible condition. I don't know where to turn for help. You told me to call you if I needed you."

"Yes, of course. Will you allow me to come out there?"

"I wish you would."

"Is your father delirious?"

"Yes, he is at times."

"I will come at once."

The chemist packed a bag, and caught a train. He arrived at nine o'clock, and was admitted by the gate keeper. He was aware that shadows watched him and knew that Moran's faithful bloodhounds were on the job.

The young woman greeted him with tear-strained face. "Father is in his apartment," she said: "He has been in bed now for several days. He cannot eat, and is growing weaker."

Lawson's heart was torn, by the sight of the girl's grief. He tried to comfort her but she loved her father and her inability to help him made her frantic.

"Something must be done! Something can be done," she cried. "Oh, help me!"

"May I talk with the physicians?"

"Dr. Morse is here. There are two skin specialists, but they come in the morning."

Dr. Morse was a heavy-set man, with clean-shaven face and black eyes. He seemed rather to resent the intrusion of Lawson, whose degree was Ph.D. But he came out into the hall at Miss Mallory's call, and answered Lawson's questions.

The Evil Attack

"YOU say ulcers have appeared, after dermatitis?" asked Lawson.

"Yes. And the internal organs are deranged. The heart and stomach are not functioning properly. Also, a blood test shows pernicious anemia."

"Well, then, Dr. Morse," said the chemist, "this points to exposure to radium. Do you realize that?"

The doctor shrugged: "My dear fellow, we have diagnosed it as such. We are treating the burns with scarlet red and zinc oxide. To keep them clean and prevent their spreading is the most we can do. What baffles us is that the patient shows no improvement, but grows steadily worse. It is easy to see how he might have been burned at some time during the course of his work with radium. The burns may not appear for as long as two years, and, again, they may show in ten days."

Lawson nodded. From the other room, a shriek went up, an eerie cry which penetrated the flesh and caused the girl to scream in terror and sob violently.

"Oh, poor father!"

"Hush," ordered Lawson, gripping her arm.

The chemist stepped into the sickroom, lighted by a single lamp. A white-clad nurse hovered near the patient.

Mallory heaved on the great bed.

"Fire," he cried: "Fire! I see fire! Oh, God, my eyes!"

The Radium King, a broken, pitiful creature now, writhed in agony.

"James—Nora—Edith. My eyes! Curse the luck."

The chemist's high brow was corrugated with heavy wrinkles. Outside the door, he could hear the sobs of his sweetheart, crying for her parent's pain. Lawson stepped outside the room.

"Doctor," he said gravely, "do his words mean nothing to you?"

"Eh?" said the surprised Morse. "They are ravings, that's all."

"Perhaps they are. But they have a significance. Now, I want to investigate the room. Please tell the nurse that I am to be allowed the run of the place."

Morse hesitated. He did not like this interference with his authority. "Of course, doctor," said Edith Mallory, "allow Dr. Lawson to do as he likes. He is a friend and a famous scientist."

The doctor stepped aside. Lawson entered the sickroom again, closing the door after him.

Fifteen minutes later, he came out, his eyes grave.

"Dr. Morse, you must move Mr. Mallory at once. Do not allow anyone to enter the room again, or the bed to be used."

"The patient should not be moved," said Morse, "in his present condition."

"He must be moved. I will move him myself if you do not. He is burned by radium, and he is being burned more. I don't want anything disturbed in the room, but Mr. Mallory is to be taken to another bed."

"On whose authority do you issue these orders?" asked Morse coldly.

"On my authority," said the girl, her eyes flashing.

Morse obeyed, grumbling. Ten minutes later, and the sick room was empty. Mallory had been carried down the hall, and placed in a guest room.

Then the three, Morse, Lawson and the girl, went downstairs. The nurse was left in charge of the patient.

"I'm going outside for a minute," said Lawson.

He went to the front door, and stepped out into the night. "Ulman, Harte," he called softly.

A moment later, and a dark figure stepped up to him: "It's Detective Ulman. How are you, Dr. Lawson?"

"Very well. But I want you and Harte to watch Mr. Mallory's former room very carefully. It's the fourth window from this side, in the rear, where the balcony is."

"Harte is there now."

"Very well. Don't let it out of your sight for an instant. Keep under cover yourselves, so you will not frighten anyone away, do you understand? If anyone comes, let him get into the house; but do not let him out."

"Yes, sir."

Lawson returned to the hall, where he found Morse about to take his leave. "I'll be here in the morning," said the doctor: "If he grows worse during the night, call me at once."

The girl and Lawson were left alone.

"Why did you have father's room changed?" asked the woman.

Lawson's eyes were grave. "Because, Miss Mallory, from your father's words, uttered in delirium it is true, but significant to me, I became almost certain that he was being exposed to radium. It makes the eyeballs luminous—not so that it can be seen by an observer—but the exposed person's eyes gleam under the lids so that, when the eyes are closed, there is a glow which is maddening. This is but a temporary effect of radium; it would have passed off instead of growing worse, had your father been burned at any previous time. That and the fact that he is only getting worse, made me sure that he must be under the influence of radium while he lay in bed."

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Crime in Business

(Continued from Page 293)

metering instruments and precancelled stamps cuts down losses, often to an astonishing degree. In other places, where small pieces of merchandise can easily be carried out, perpetual-inventory systems will help a great deal; particularly if the employees know that some one in authority takes stock, at irregular intervals, to check up. All of these methods are strong deterrents against petty thefts. But even with them, the evil is not always eradicated entirely.

If an employer has any suspicion that a good deal of stealing and pilfering goes on, it is often advisable to install a dictograph where a member of the firm can listen in to conversations in wash-rooms, shipping rooms, assembling rooms, and points where employees are known to congregate.

(Continued on Page 363)

The average business man will be surprised and astonished how much information he can obtain, in this manner, that he would not dream of otherwise.

One of the greatest nuisances, perhaps, in the average American office is that outsiders and relatives can send letters to individuals of the staff. This easily makes for some losses; because disloyal employees have been known to carry on business in competition with the firms, through having letters from the firm's own customers come in addressed to individuals.

The larger organizations do not tolerate mail addressed to individuals, and usually open up such mail, regardless of the address. This stops a great many leaks, which otherwise would be a detriment to the business.

\$100⁰⁰ in GOLD for a SLOGAN

for



A few moments of your spare time NOW may bring you \$100.00 in gold.

WE WANT a catchy slogan for this magazine. Slogans are now used universally in many different lines of business, and we believe that this magazine should be known by its own slogan.

Such slogans as "NOT A COUGH IN A CARLOAD," "GOOD TO THE LAST DROP," "SAY IT WITH FLOWERS," etc., are well known. A number of magazines have already adopted slogans, such, for instance as *Popular Mechanics*, with "WRITTEN SO YOU CAN UNDERSTAND IT."

We are offering \$100.00 for a novel, as well as descriptive, catchy phrase, which we shall use after the end of the contest as a permanent slogan of this magazine.

REMEMBER, THERE IS NOTHING TO BUY OR SELL!

You have an equal chance to win this prize, regardless of whether or not you are a subscriber. The contest is open to all. Get your friends in on this and, if they give you suggestions, you may split the prize with them, if you so desire.

To win the \$100.00 prize, you must submit only a single slogan, one only. It must be an original idea. It makes no difference who you are or where you live, whether in this country or not, anyone may compete in this contest and you may be the winner.

Look this magazine over carefully and try to find out what it stands for, what its ideals are, and what it tries to accomplish. Then try to put all of your finds into a slogan which must not, under any circumstances, have more than seven words.

After you have the idea, try to improve upon it by shortening the slogan and making it sound more euphonious; but always remember that it is the idea which counts. The cleverer the slogan, and the better it expresses the ideas for which this magazine stands the easier for you to win the prize.

No great amount of time need be spent in the preparation of slogans. Start thinking right now and jot down your thoughts. Also, tell your friends about it, and get them to submit slogans of

their own, or compose one in partnership with them.

Here are a couple of sample slogans, which are given as mere suggestions, and not to be used as entries:

"THRILLS AND EDUCATION"
"AN ENCYCLOPEDIA OF SCIENCE THRILLS"

Rules for the Contest

- (1) The slogan contest is open to everyone except members of the organization of SCIENTIFIC DETECTIVE MONTHLY and their families.
- (2) Each contestant may send in only one slogan; no more.
- (3) Slogans must be written legibly or typed on the special coupon published on page 373 of this magazine. (If you do not wish to cut the magazine, copy the coupon on a sheet of paper exactly the same size as the coupon.) Use only ink or typewriter; penciled matter will not be considered.
- (4) Each slogan must be accompanied by a letter stating in 200 words, or less, your reasons for selecting this slogan.
- (5) In case of duplication of a slogan, the judges will award the prize to the writer of the best letter; the one which, in their opinion, gives the most logical reasons for the slogan.

This contest closes on May 1, 1930, at which time all entries must be in this office; and the name of the winner will be announced in the July, 1930, issue of SCIENTIFIC DETECTIVE MONTHLY, on publication of which the prize will be paid.

Because of the large number of entries, which may be expected, the publishers cannot enter into correspondence regarding this contest.

Address all communications to:

Editors, Slogan Contest,
Care of SCIENTIFIC DETECTIVE MONTHLY,
96-98 Park Place,
New York, N. Y.

The Terror in the Air

(Continued from Page 298)

a loss to account in any other way for the light, but I was surprised to see how eagerly Craig accepted it.

"Perhaps you are right, in a way," he assented. "I guess it isn't a spark, after all. Yes, it must be the reflection of the sun on a piece of glass—the angles are just about right for it. Anyhow it caught my eye. Still, I believe that barn will bear watching."

Whatever his suspicions, Craig kept them to himself, and descended. At the same time Norton gently dropped back to earth in front of his hangar, not ten feet from the spot where he started. The applause was deafening, as the machine was again wheeled into the shed safely.

Kennedy and I pushed through the crowd to the radio operator.

"How's she working?" inquired Craig.

"Rotten," replied the operator sullenly. "It was worse than ever about five minutes ago. It's much better now, almost normal again."

Just then the messenger-boy, who had been hunting through the crowd for us, handed Kennedy a note. It was merely a scrawl from Norton:

"Everything seems fine. Am going to try her next with the gyroscope. Norton."

"Boy," exclaimed Craig, "has Mr. Norton a telephone?"

"No, sir, only that hangar at the end has a telephone."

"Well, you run across that field as fast as your legs can carry you and tell him if he values his life not to do it."

"Not to do what, sir?"

"Don't stand there, youngster. Run! Tell him not to fly with that gyroscope. There's a five-spot in it if you get over there before he starts."

Even as he spoke the Norton airplane was wheeled out again. In a minute Norton had climbed up into his seat and was testing the levers.

Would the boy reach him in time? He was half across the field, waving his arms like mad. But apparently Norton and his men were too engrossed in their machine to pay attention.

"Good heavens!" exclaimed Craig. "He's going to try it. Run, boy, run!" he cried, although the boy was now far out of hearing.

Across the field we could hear now the quick staccato chug-chug of the engine. Slowly Norton's airplane, this time really equipped with the gyroscope, rose from the field and circled over toward us. Craig frantically signalled to him to come down, but of course Norton could not have seen him in the crowd. As for the crowd, they looked askance at Kennedy, as if he had taken leave of his senses.

I heard the radio operator cursing the way his receiver was acting.

Higher and higher Norton went in

one spiral after another, those spirals which his gyroscope had already made famous.

The man with the megaphone in front of the judge's stand announced in hollow tones that Mr. Norton had given notice that he would try for the Brooks Prize for stationary equilibrium.

The Strange Sparks

Kennedy and I stood speechless, helpless, appalled.

Slower and slower went the airplane. It seemed to hover just like the big mechanical bird that it was.

Kennedy was anxiously watching the judges with one eye and Norton with the other. A few in the crowd could no longer restrain their applause. I remember that the radio block of us was spluttering and crackling like mad.

All of a sudden a groan swept over the crowd. Something was wrong with Norton. His airplane was swooping downward at a terrific rate. Would he be able to control it? I held my breath and gripped Kennedy by the arm. Down, down came Norton, frantically fighting by main strength, it seemed to me, to warp the planes so that their surface might catch the air and check his descent.

"He's trying to detach the gyroscope," whispered Craig hoarsely.

The football helmet which Norton wore blew off and fell more rapidly than the plane. I shut my eyes. But Kennedy's next exclamation caused me quickly to open them again.

"He'll make it, after all!"

Somehow Norton had regained partial control of his machine, but it was still swooping down at a tremendous pace toward the level centre of the field.

There was a crash as it struck the ground in a cloud of dust.

With a leap Kennedy had cleared the fence and was running toward Norton. Two men from the judges' stand were ahead of us, but except for them we were the first to reach him. The men were tearing frantically at the tangled framework, trying to lift it off Norton, who lay pale and motionless, pinned under it. The machine was not so badly damaged, after all, but that together we could lift it bodily off him.

A doctor ran out from the crowd and hastily put his ear to Norton's chest. No one spoke, but we all scanned the doctor's face anxiously.

"Just stunned—he'll be all right in a moment. Get some water," he said.

Kennedy pulled my arm. "Look at the gyroscope dynamo," he whispered.

I looked. Like the other two which we had seen, it also was a wreck. The insulation was burned off the wires, the wires were fused together, and the storage-battery looked as if it had been burned out.

A flicker of the eyelid and Norton seemed to regain some degree of consciousness. He was living over again the ages that had passed during the seconds of his terrible fall.

"Will they never stop? Oh, those sparks, those sparks! I can't disconnect it. Sparks, more sparks—they never—" So he rambled on. It was fearsome to hear him.

But Kennedy was now sure that Norton was safe and in good hands, and he hurried back in the direction of the grand stand. I followed. Flying was over for that day, and the people were filing slowly out toward the railroad station where the special trains were waiting. We stopped at the radio station for a moment.

"Is it true that Norton will recover?" inquired the operator.

"Yes. He was only stunned, thank Heaven! Did you keep a record of the antics of your receiver since I saw you last?"

"Yes, sir. And I made a copy for you. By the way, it's working all right now when I don't want it. If Williams was only in the air now I'd give you a good demonstration of communicating with an airplane," continued the operator as he prepared to leave.

Kennedy thanked him for the record and carefully folded it. Joining the crowd, we pushed our way out, but instead of going down to the station with them, Kennedy turned toward the barn and the yellow house.

For some time we waited about casually, but nothing occurred. At length Kennedy walked up to the shed. The door was closed and double padlocked. He knocked, but there was no answer.

Just then a man appeared on the porch of the yellow house. Seeing us, he beckoned. As we approached he shouted, "He's gone for the day!"

"Has he a city address—any place I could reach him to-night?" asked Craig.

"I don't know. He hired the barn from me for two weeks and paid in advance. He told me if I wanted to address him the best way was 'Dr. K. Lamar, General Delivery, New York City.'"

"Ah, then I suppose I had better write to him," said Kennedy, apparently much gratified to learn the name. "I presume he'll be taking away his apparatus soon?"

"Can't say. There's enough of it. Cy Smith—he's in the electric light company up to the village—says the doctor has used a powerful lot of current. He's good pay, though he's awful close-mouthed. Flying's over for to-day, ain't it? Was that feller much hurt?"

"No, he'll be all right to-morrow. I think he'll fly again. The machine's in pretty good condition. He's bound to win that prize. Good-bye."

Will Norton Fly?

As he walked away I remarked, "How do you know Norton will fly again?"

"I don't," answered Kennedy, "but I think that either he or Humphreys will. I wanted to see that this Lamar believes it anyhow. By the way, Walter, do you think you could grab a wire here and phone in a story to the *Star* that Norton isn't much hurt and will probably be able to fly tomorrow? Try to get the City News Association, too, so that all the papers will have it. I don't care about risking the general delivery—perhaps Lamar won't call for any mail, but he certainly will read the papers. Put it in the form of an interview with Norton—I'll see that it is all right and that there is no come-back. Norton will stand for it when I tell him my scheme."

I caught the *Star* just in time for the last edition, and some of the other papers that had later editions also had the story. Of course all the morning papers had it.

Norton spent the night in the Mincola Hospital. He didn't really need to stay, but the doctor said it would be best in case some internal injury had been overlooked. Meanwhile Kennedy took charge of the hangar where the injured machine was. The men had been in a sort of panic; Humphreys could not be found, and the only reason, I think, why the two mechanics stayed was because something was due them on their pay.

Kennedy wrote them out personal checks for their respective amounts, but dated them two days ahead to insure their staying. He threw off all disguise now and with authority from Norton directed the repairing of the machine. Fortunately it was in pretty good conditions. The broken parts were the landing wheels, not the essential parts of the machine. As for the gyroscope, there were plenty of them and another dynamo, and it was a very simple thing to replace the old one that had been destroyed.

Sinclair worked with a will, far past his regular hours. Jaurette also worked, though one could hardly say with a will. In fact, most of the work was done by Sinclair and Kennedy, with Jaurette sullenly grumbling, mostly in French under his breath. I did not like the fellow and was suspicious of him. I thought I noticed that Kennedy did not allow him to do much of the work, either, though that may have been for the reason that Kennedy never asked anyone to help him who seemed unwilling.

"There," exclaimed Craig about ten o'clock. "If we want to get back to the city in any kind of time to-night we had better quit. Sinclair, I think you can finish repairing these wheels in the morning."

We locked up the hangar and hurried across to the station. It was late when we arrived in New York, but Kennedy insisted on posting off up to his laboratory, leaving me to

run down to the *Star* office to make sure that our story was all right for the morning papers.

I did not see him until morning, when a large touring-car drove up. Kennedy routed me out of bed. In the tonneau of the car was a huge package carefully wrapped up.

"Something I worked on for a couple of hours last night," explained Craig, patting it. "If this doesn't solve the problem then I'll give it up."

I was burning with curiosity, but somehow, by a perverse association of ideas, I merely reproached Kennedy for not taking enough rest.

"Oh," he smiled. "If I hadn't been working last night, Walter, I couldn't have rested at all for thinking about it."

When we arrived at the field Norton was already there with his head bandaged. I thought him a little pale, but otherwise all right. Jaurette was sulking, but Sinclair had finished the repairs and was busily engaged in going over every bolt and wire. Humphreys had sent word that he had another offer and had not shown up.

Nerve

"We must find him," exclaimed Kennedy. "I want him to make a flight to-day. His contract calls for it."

"I can do it, Kennedy," asserted Norton. "See, I'm all right."

He picked up two pieces of wire and held them at arm's length, bringing them together, tip to tip, in front of him just to show us how he could control his nerves.

"And I'll be better yet by this afternoon," he added. "I can do that stunt with the points of pins then."

Kennedy shook his head gravely, but Norton insisted, and finally Kennedy agreed to give up wasting time trying to locate Humphreys. After that he and Norton had a long whispered conference in which Kennedy seemed to be unfolding a scheme.

"I understand," said Norton at length, "you want me to put this sheet-lead cover over the dynamo and battery first. Then you want me to take the cover off, and also to detach the gyroscope, and to fly without using it. Is that it?"

"Yes," assented Craig. "I will be on the roof of the grand stand. The signal will be three waves of my hat repeated till I see you get it."

After a quick luncheon we went up to our vantage-point. On the way Kennedy had spoken to the head of the Pinkertons engaged by the management for the meet, and had also dropped in to see the radio operator to ask him to send up a messenger if he saw the same phenomena as he had observed the day before.

On the roof Kennedy took from his pocket a little instrument with a needle which trembled back and forth over a dial. It was nearing the time for the start of the day's flying, and the airplanes were getting ready. Kennedy was calmly biting a cigar, casting occasional glances at the needle

as it oscillated. Suddenly, as Williams rose in the Wright machine, the needle swung quickly and pointed straight at the aviation field, vibrating through a small arc, back and forth.

"The operator is getting his apparatus ready to signal to Williams," remarked Craig. "This is an apparatus called an odometer. It tells you the direction and something of the magnitude of the Hertzian waves used in radio."

Five or ten minutes passed. Norton was getting ready to fly. I could see through my field-glass that he was putting something over his gyroscope and over the dynamo, but could not quite make out what it was. His machine seemed to leap up in the air as if eager to redeem itself. Norton with his white-banded head was the hero of the hour. No sooner had his plane got up over the level of the trees than I heard a quick exclamation from Craig.

"Look at the needle, Walter!" he cried. "As soon as Norton got into the air it shot around directly opposite to the radio station, and now it is pointing—"

We raised our eyes in the direction which it indicated. It was precisely in line with the weather-beaten barn.

I gasped. What did it mean? Did it mean in some way another accident to Norton—perhaps fatal this time? Why had Kennedy allowed him to try it to-day when there was even a suspicion that some nameless terror was abroad in the air? Quickly I turned to see if Norton was all right. Yes, there he was, circling above us in a series of wide spirals, climbing up, up. Now he seemed almost to stop, to hover motionless. He was motionless. His engine had been cut out, and I could see his propeller stopped. He was riding as a ship rides on the ocean.

A boy ran up the ladder to the roof. Kennedy unfolded the note and shoved it into my hands. It was from the operator.

"Radio out of business again. Curse that fellow who is butting in. Am keeping record," was all it said.

I shot a glance of inquiry at Kennedy, but he was paying no attention now to anything but Norton. He held his watch in his hand.

The Final Flight

"Walter," he ejaculated as he snapped it shut, "it has now been seven minutes and a half since he stopped his propeller. The Brooks Prize calls for five minutes only. Norton has exceeded it fifty per cent. Here goes."

With his hat in his hand he waved three times and stopped. Then he repeated the process.

At the third time the plane seemed to give a start. The propeller began to revolve, Norton starting it on the compression successfully. Slowly he circled down again. Toward the end of the descent he stopped the engine and volplaned, or coasted, to the ground, landing gently in front of his hangar.

A wild cheer rose into the air from the crowd below us. All eyes were riveted on the activity about Norton's biplane. They were doing something to it. Whatever it was, it was finished in a minute and the men were standing again at a respectful distance from the propellers. Again Norton was in the air. As he rose above the field Kennedy gave a last glance at his odometer and sprang down the ladder. I followed closely. Back of the crowd he hurried, down the walk to the entrance near the railroad station. The man in charge of the Pinkertons was at the gate with two other men, apparently waiting.

"Come on!" shouted Craig.

We four followed him as fast as we could. He turned in at the lane running up to the yellow house, so as to approach the barn from the rear, unobserved.

"Quietly, now," he cautioned.

We were now at the door of the barn. A curious crackling, snapping noise issued. Craig gently tried the door. It was bolted on the inside. As many of us as could throw ourselves like a human catapult against it. It yielded.

Inside I saw a sheet of flame fifteen or twenty feet long—it was a veritable artificial bolt of lightning. A man with a telescope had been peering out of the window, but now was facing us in surprise.

"Lamar," shouted Kennedy, drawing a gun, "one motion of your hand and you are a dead man. Stand still—where you are. You are caught red-handed."

The rest of us shrank back in momentary fear of the gigantic forces of nature which seemed let loose in the room. The thought, in my mind at least, was: Suppose this arch-fiend should turn his deadly power on us?

Kennedy saw us from the corner of his eye. "Don't be afraid," he said with just a curl of his lip. "I've seen all this before. It won't hurt you. It's a high frequency current. The man has simply appropriated the invention of Mr. Nikola Tesla. Seize him. He won't struggle. I've got him covered."

Two burly Pinkertons leaped forward gingerly into the midst of the electrical apparatus, and in less time than it takes to write it Lamar was hustled out to the doorway, each arm pinioned back of him.

As we stood, half dazed by the suddenness of the turn of events, Ken-

nedy hastily explained: "Tesla's theory is that under certain conditions the atmosphere, which is normally a high insulator, assumes conducting properties and so becomes capable of conveying any amount of electrical energy. I myself have seen electrical oscillations such as these in this room of such intensity that while they could be circulated with impunity through one's arms and chest they would melt wires farther along in the circuit. Yet the person through whom such a current is passing feels no inconvenience. I have seen a loop of heavy copper wire energized by such oscillations and a mass of metal within the loop heated to the fusing point, and yet into the space in which this destructive aerial turmoil was going on I have repeatedly thrust my hand and even my head, without feeling anything or experiencing any injurious after-effect. In this form all the energy of all the dynamos of Niagara could pass through one's body and yet produce no injury. But, diabolically directed, this vast energy has been used by this man to melt the wires in the little dynamo that runs Norton's gyroscope. That is all. Now to the aviation field. I have something more to show you."

We hurried as fast as we could up the street and straight out on the field, across toward the Norton hangar, the crowd gaping in wonderment. Kennedy waved frantically for Norton to come down, and Norton, who was only a few hundred feet in the air, seemed to see and understand.

As we stood waiting before the hangar Kennedy could no longer restrain his impatience.

The Artificial Lightning

"I suspected some radio-power trick when I found that the field radio telegraph failed to work every time Norton's plane was in the air," he said, approaching close to Lamar. "I just happened to catch sight of that peculiar radio mast of yours. A little flash of light first attracted my attention to it. I thought it was an electric spark, but you are too clever for that, Lamar. Still, you forgot a much simpler thing. It was the glint of the sun on the lens of your telescope as you were watching Norton that betrayed you."

Lamar said nothing.

"I'm glad to say you had no confederate in the hangar here," continued Craig. "At first I suspected it. Anyway, you succeeded pretty well

single-handed—two lives lost and two machines wrecked. Norton flew all right yesterday when he left his gyroscope and dynamo behind, but when he took them along you were able to fuse the wires in the dynamo—you pretty nearly succeeded in adding his name to those of Browne and Herick."

The whirr of Norton's machine told us he was approaching. We scattered to give him space enough to choose the spot where he would alight. As the men caught his machine to steady it, he jumped lightly to the ground.

"Where's Kennedy?" he asked, and then, without waiting for a reply, he exclaimed: "Queerest thing I ever saw up there. The dynamo wasn't protected by the sheet-lead shield in this flight as in the first to-day. I hadn't risen a hundred feet before I happened to hear the darndest sputtering in the dynamo. Look, boys, the insulation is completely burned off the wires, and the wires are nearly all fused together."

"So it was in the other two wrecked machines," added Kennedy, coming coolly forward. "If you hadn't had everything protected by those shields I gave you in your first flight to-day you would have simply repeated your fall of yesterday—perhaps fatally. This fellow has been directing the full strength of his radio high-tension electricity straight at you all the time."

"What fellow?" demanded Norton.

The two Pinkertons shoved Lamar forward. Norton gave a contemptuous look at him. "Delanne," he said, "I knew you were a crook when you tried to infringe on my patent, but I didn't think you were coward enough to resort to—murder."

Lamar, or rather Delanne, shrank back as if even the protection of his captors was safety compared to the threatening advance of Norton toward him.

"Pouff!" exclaimed Norton, turning suddenly on his heel. "What a fool I am. The law will take care of such scoundrels as you. What's the grand stand cheering for now?" he asked, looking across the field in an effort to regain his self-control.

A boy from one of the hangars down the line spoke up from the back of the crowd in a shrill, piping voice. "You have been awarded the Brooks Prize, sir," he said.

THE END

Next Month--

"THE ELEVENTH HOUR"

by EDWIN BALMER and WILLIAM B. Mac HARG

A Story That is Different

Black Light

(Continued from Page 335)

points of the arc. The hood was neither glass nor any familiar crystal. It was green in color. There was a tiny crack at its upper end.

Rake touched this crack with his fingernail.

"They call this stuff Molobenthan," he explained. "It's an extremely rare crystal. Perhaps the name was made up—I never heard of it before."

"Maybe you'll never hear of it again, Pal."

"Pascal went to Boulder, Colorado, to try and get another one. The chances are, Scar, this crack puts the end to our plans. I don't believe it works. Extreme cold caused it to split."

Rake glanced at the ceiling. He reached and drew down the two insulated wires. He opened the screws of a pair of binding-posts in the ebony base. Then, remembering the switch on the wall, he stepped over the concrete floor and saw that the handle was pulled out.

"We've got to be careful," he said. "I don't know what voltage is on the line. We'll start the rotary transformer and see if the green glow operates. You better stand near the door."

Rake connected the two leads, lowered the crystal over the arcs, tested the fine wires which led to the zinc-composition cross and then stepped to the switch.

"Look out!" he warned Big Scar.

A sparking showed at the double brush holder of the transformer. It moved, hummed and then whined. A click sounded as the two green carbons drew apart. A turquoise light filled the room. This light changed shade and became peacock blue. The glow merged into deep blue and then swiftly into green darkness.

"Strike a match!"

The astonished yegg cursed as he struck a dozen without seeing a light.

"Go up stairs," shouted Rake above the whine of the rotary transformer. "Notice how far you have to go before you can distinguish anything. Go through the house and out in the yard."

Rake waited and listened. He reached a hand up to the switch and clasped the insulated handle. He heard Big Scar's oaths as the yegg stumbled over the top of the stairs and then against the hall-tree by the front door. The purring transformer—the hissing arc—the frost which was already in the air, made Rake fear for his own life. He pried his eyes open with his left hand and attempted to see a rift in the veil. There was none.

Footsteps, halting and uncertain sounded finally, as Big Scar searched his way back through the hall until he reached the basement stairs. He came down with a curse at each step.

He grasped the edge of the door leading into the laboratory.

"You there yet, Pal?" he throatied. "Shut that damn thing off."

"How far does the green glow extend?"

"To th' front gate! I couldn't see a star or anything until I crawled that far. Then I saw lights ov th' town. Th' smoke gets thin about sixty feet from here."

"Smoke is good," chuckled Rake. "What did the house look like from the gate?"

"Looks like a green hole in th' night. For Gawd sake, shut off that thing! Me eyes hurt."

"Minus Light"

Rake jerked the switch down. The transformer ceased whining. A deep blue filled the room. This changed to peacock blue and then to turquoise. The lamp on the side of the wall started to glow like a worm in a bottle. It flared to brilliancy as the two carbons of the arc clicked together.

Rake strode to the lamp and examined it carefully.

"One hundred and ten volts, direct current," he said. "That's low. The transformer steps the voltage down to about thirty. Say, Scar, we can put this whole apparatus in a suitcase."

"How?"

"Easy—if the case is big enough. We can do away with the transformer by substituting about fifteen batteries—small ones. We don't need to cut holes in the case or make an opening with celluloid, such as is used in the back curtain of an automobile. The green glow is like an X-ray—it penetrates everything."

"I couldn't see a glim in th' house when I crawled out."

"The machine makes anti-light or minus-light. It'll extinguish any light known, Scar."

The yegg stepped through the door. He turned his head and squinted toward the wine cellar. He stopped and picked up the bar of iron which Rake had used in opening the three bull locks.

"Th' old geezer," he said, "is well stocked with wealthy water. It's me an' you, Rake, for a quart ov fizz apiece. We'll drink tu th' light an' all the kale it's goin' to bring to us."

Rake heard the yegg attempting to open the lock on the wine cellar door. He smiled. The trick was not as easily done as it appeared. It was ten minutes before Big Scar appeared in the doorway of the laboratory, with two bottles under his arm.

"Come upstairs," he muttered. "We'll celebrate th' occasion by starin' th' radio an' drinkin' up. In th' morning we can tend to th' suitcase an' batteries." Rake glanced about the laboratory. He turned out

the light on the power circuit, closed the door, hung the locks upon the staples and followed the yegg up stairs. They drank and Big Scar went for more.

Rake came to his senses as the lithe gold clock on the mantel in the library struck twelve notes.

He turned down his glass when the yegg reached a bottle across the table.

"No!" he declared earnestly. "Finish that bottle and let's get to work. We've got plenty to do. I want a big suitcase from the professor's collection in the spare closet. I want storage batteries. We must be ready to leave here at the crack o' dawn, Scar."

"Aw! Let's hang around a day or two. We can get some girls up from New York. Th' old miser is about hittin' Buffalo. He's going a long ways on th' cushions."

Rake's glance drilled through Big Scar's fuddled brain.

The yegg set down the bottle. His blue-stained fingers coiled and uncoiled. He wet his thick lips thirstily. Then, both men turned their heads as the front door bell rang.

Both rose and started toward the portieres which were draped across the doorway leading to the hall.

"The professor!" guessed Big Scar.

"Betty!" Rake exclaimed. "Here is Betty! She's ahead of time!"

The yegg tiptoed across the floor and lunged through the hall. He came back with the planks creaking.

"Skirt outside," he said deep in his throat. "Hick kid with pasteboard keister an' a flopping hat—one ov them big picture things like they wear when they come to town. What'll we do?"

"Let 'er in," said Rake. "I'll be the uncle she never saw."

"She might queer everything."

"Go on, Scar! Let her in!"

"What'll I say?"

"See what she says."

The yegg hesitated, caught a flash from Rake's eyes and hurried to the front door.

"This way tu y'ur Uncle Alonzo!" Rake heard Big Scar announce.

Betty!

The portieres parted and let in a slender girl whose cheeks were the color of russet apples and whose eyes were filled with tears. She advanced as Big Scar set down a papier-mâché suitcase.

"Well!" said Rake. "Well, is this Betty?"

"Y-e-s. And this is uncle?"

"Surest thing you know—little girl."

"I came to see you because mother

sent me. Here is a letter from mother for you."

Rake stared at the girl's lips as she plucked an envelope from her breast.

She handed it over. Big Scar coughed distressingly. Rake read the letter. He glanced up and ordered:

"Butler, show Miss Betty the room we always keep for relatives. See that she has everything. I suppose you're tired?" he added, smiling at her.

"I came right through. Mother thought I should remain in the waiting room at New York until morning. I couldn't wait. I didn't believe all the harsh things she said about you."

"Do you believe them now?" Rake questioned.

"You are so different than I thought you were."

"How old are you?"

"Seventeen, uncle."

Rake dropped his eyes to the letter. He lifted it, then laid it down again. He stared over the girl's shoulder and flashed a warning to Big Scar.

"Tomorrow," he said, "you can tell me about your mother and yourself. I'll think over the letter, in the meantime. You get a good sleep, Betty."

"And will you help mother?"

"Sure!"

"Oh, I'm so glad."

The girl started around the table. Her hands went out. Tears brightened her eyes. The creamyness of her neck reddened and welled to her cheeks. A lock of hair dropped over one ear. She tripped on the edge of a rug.

Rake caught her gallantly. He said to the yegg:

"Take her bag! She will follow you upstairs. See that there is everything in the room—towels and soap and a little supper. There's tongue and milk in the ice box—then lock her door and come down to me."

The girl paused in the hall.

"Good night, uncle."

"Good night, Betty."

Ten minutes ensued before Big Scar strode down stairs and stumbled into the library. He tossed Rake the key to the bedroom door.

"What was in that letter?" he asked.

"You're gettin' soft, Pal."

Rake glanced at the table.

"This is a different thing from what I expected, Scar."

"Are yu goin tu give up th' green glow idea?"

"No! But—"

"But wot?"

"The professor robbed Betty and her mother of their fortune. He copped their coin."

"He looked like that kind ov a guy!"

"He is! He left them to starve. They couldn't prove their claim. There was a will which was never found. Alonzo made himself executor. He abandoned them on a ten-acre farm in Maine. He used the money in scientific experimentation. It amounted to seventy thousand dollars."

"Wot? Does it say all that in th' letter?"

Rake picked up the envelope and crammed it in his pocket. He stared at the little gold clock on the mantel piece.

"It's three," he evaded. "We'll get busy! No sleep for us! We'll fix up a suitcase with the green glow apparatus. We'll get batteries in the morning. Then we'll leave this part of the world."

"How about th' skirt upstairs?"

Rake answered:

"We can help her, somehow. We'll make old Alonzo come across with money for her, or we'll keep his papers and notes on green light. He's been working years on 'em."

"He may call th' coppers."

"Let him! We've got to do something for Betty."

"I told you to look out for the skirts, Pal."

The Flaming Arc

"You didn't tell me. I told you! But this is a different situation than I figured on."

"Oh, she's silk. She wuz sayin' her prayers when I locked her door."

The two crooks went to the basement and started ripping the wiring from the table in the laboratory and unscrewing the ebony base. Rake examined all of Pascal's tools on the work bench. He found what he required in the way of screw drivers and pliers. He sent Big Scar up stairs for the largest suitcase in the professor's collection. The yegg came down with a dusty leather bag.

Morning dawned before the job was completed. The flaming-arc apparatus was fastened to the bottom of the bag. A switch was rigged which could be turned on and off when the case was shut. A place was partitioned to hold the batteries. These would have to be small in size to take up their number. "Ten-ampere hour batteries," Rake explained. "We want fourteen or fifteen to give us thirty volts of direct current."

Blocking the green crystal so that it would not touch the carbons, Rake carried the bag up stairs, after Big Scar snapped shut the three locks and followed him.

The bag was deposited in a closet. Rake went into the library. He raised the blinds and glanced out. Cold dawn was coming up over the world. He was tired from the night's exertions. He lay down on a couch between two book cases; braced his head with his hands and said to Big Scar: "Clean up! Shave! Get breakfast for Betty. I hear her stirring in the front room."

"Wot?"

"Do as I say. We'll divert her suspicion. Tell her that her uncle expects her down in twenty minutes."

"I can't shave an' make omelets an' coffee an' do all that in twenty minutes, Pal."

"You can try!"

Big Scar lumbered toward the kitchen. He went upstairs by the back way and entered the bathroom.

He announced breakfast by knocking upon the girl's door and saying:

"Your uncle, Professor Alonzo, is awaitin' yu, for breakfast."

"All right!" sounded in silvery warmth. The girl appeared. Her cheeks were rosy and her eyes were held demurely down.

"This woy!" said Big Scar. "This woy tu th' breakfast room."

Rake sat at the table in the little dining room between the library and the kitchen. He rose as the girl stepped in. He bowed and motioned for Big Scar to hold back her chair.

"Good morning," he greeted her. "Did you sleep well?"

"Wonderfully well, uncle."

Rake leaned forward and studied the girl as she attempted to cut her grapefruit with a knife. He saw her hands drop to her sides. She puckered her lips and attempted to hold back a rush of tears. She bent toward him, and sobbed short, distressing sobs that drove through his conscience.

"What's the-matter, Betty?" he queried. "Don't you trust your uncle?"

"Oh, I do! Oh, you're so different from what mother said you were. I thought you were old. I thought you were a miser. I don't know what to think. I'd better go home."

Rake stared at Big Scar who was standing in the kitchen doorway.

"Butler, step out!" he said incisively.

The yegg waited twenty minutes in the kitchen. Once or twice he started toward the dining room. Each time he heard Rake's voice reassuring the girl that he was going to see that her fortune was restored.

The big yegg threw down his hands with a final gesture.

"It's all off," he growled. "Th' skirt is goin' tu beat us!"

Rake appeared in the doorway.

"Butler," he said, "have you a telegraph blank?"

Striding close to the yegg, Rake whispered:

"You and I are going to leave her in the house. Get ready to go to New York. We've got time. We'll get the batteries on Cortlandt Street. You stall around and make a pretense of dusting off things in the library until we're ready to go. Look up the south-bound trains."

"What's th' goime, Pal?"

The Safe Blowers

"A professional fry-out. She told me about her fortune and her mother's fortune. Pascal was her father's brother. He stole the will and the securities. He's got some of them planted. I know where they are. They're not in the wall-safe upstairs. There's a receipt there for a safe deposit box in the Maynard Trust Company on Fifth Avenue. We'll rent a box this afternoon. While we're renting it, we'll get the will and the bonds and the securities that are in box number 713."

"Aw, cawn't we blow west with th' machine?"

"No! We'll try it on the hardest job first. If it works there we can rip the country wide open, Scar."

"What about th' dame?" Big Scar pointed his thumb toward the dining room.

Rake's face softened.

"An angel," he whispered. "I can't pass up doing her a good turn."

"Aw!"

The yegg glanced around for a duster as Rake hurried to the dining room. He strode through the hall and said from the library portieres:

"There's no telegraph blanks, sir. Shall I ask th' neighbors fer some?"

"Let them go, Jones," said Rake. "We can send a wire from New York. I want you to carry my bag to the station. Be ready in a half hour."

Betty's face was radiant. She stood on the porch when Rake and Big Scar turned at the foot of the steps and glanced at her.

The yegg had drawn a hat down over his tell-tale scar. He was slightly bent with the weight of the bag he carried. His eyes glinted like steel drills as Rake mounted a step and clasped the girl's hands.

"What time will you be back, uncle?" she asked.

"Seven, or seven thirty. I'll bring all of the securities and the will. Your mother's letter has touched me. I know that I have done wrong in the past. We're going to forget it—and you and I. I never knew I had so charming a niece."

Big Scar coughed with a distressing hack in his throat.

Rake lifted his cap as he let go the girl's hands. He smiled keenly.

"Good-bye till seven or a little later. Don't let anybody in the house, Betty. You just play lady. There are three chickens in the chicken yard and there's music on the piano. I'll telegraph your mother that the fortune will be restored to her—and you."

A grateful ripple shone from Betty's eyes. Rake turned away from her and hastened through the gate and down toward the railroad station after Big Scar.

They reached New York at ten A. M. Chartering a taxi at the Grand Central, Rake covered a number of important points in getting ready the green glow apparatus. He purchased a small rheostat on Forty-second Street. He requested the driver to turn down Fifth Avenue. Both men peered at the ornate exterior of the Maynard Trust Company. They sank back upon the seat with a double sigh of satisfaction.

"We'll go to the Bowery," said Rake. "I want to see little Mickey Gleason. He can give me a puff of TNT and two or three double-X detonators—we'll need them."

The yegg waited in the taxi when Rake sprang out and after a ten-minute search found Mickey Gleason—a battered and resourceful safe-blower of the old school.

Their next stop was on Cortlandt Street where Rake succeeded in pur-

chasing a set of thirteen storage batteries, fully charged and equipped with leads.

"They were used for a radio," he explained to Big Scar as he carried them out to the taxi. "See if they will go in the bag."

The batteries fitted with an inch or more to spare. The connections were made in the ride uptown. The rheostat was placed in series with the green arc and the batteries. It needed but a turn of the switch, hidden in the leather folds of the bag, to start the apparatus.

"It's crude," said Rake, glancing at the bag between Big Scar's feet, "but it may do the work. We should take the Sub-Treasury with it."

The Attempt

"Let's take that, then, an' forget th' skirt. Wot's th' use ov wastin' our time on a little job?"

"This is a try-out. It's some bank, too."

The taxi slowed for the curb in front of the Maynard Trust Company. Rake leaned out and said to the chauffeur:

"Go on! Go on to the next square."

Springing from the cab, Rake walked rapidly down the Avenue, removed a card from his coat pocket and, stalking by the doorman, turned and went down a flight of marble steps which led to the vaults of the Maynard Trust Company.

A guard sat at the desk in front of the vaults. To him Rake imparted, as he handed out the card:

"I'm Doctor Bloodgood of Yonkers. I want a rather large box, by the year. Something around ten or fifteen dollars."

The guard rose and led the way into the vault. He showed Rake several boxes. Each time they were too large or too small. Rake's eyes were keen. He finally located box number 713. It was the seventh from the top in the thirteenth row from the open steel-grill door that led into the vault.

Sizing up this box, with its two flat key-holes, Rake secured one near it and paid the guard fifteen dollars after signing "Dr. Bloodgood" and obtaining keys and a receipt.

"I'll be back presently," he announced. "I'll have my man bring down some things I want to store away."

Big Scar was peering from the cab when Rake approached it. The chauffeur had the engine running.

"Get around the corner and wait," said Rake. "We will be gone but a minute."

The driver rounded the block. Big Scar climbed out with the bag. Rake gripped his arm and led him to the entrance of the Trust Company.

"Size up the get-away," he whispered. "Remember where the cab is."

The big yegg felt himself urged through the marble portals and down the flight of marble steps. He set the bag on the floor in front of the guard's desk, as Rake requested:

"Here we are! Will you open my box for me?"

The guard took the key Rake extended. He walked toward the grilled-gate to the vault. He had almost reached the opening when Rake bent, snapped the switch on the side of the bag, and glided toward the back of the building.

A hissing sounded. A violent glow filled the basement. The light from the bag deepened in color. The guard, the grilled gate, the locked boxes, the white marble all faded as the overhead lights twinkled faintly and then were gone in the darkness that fell like a veil.

"Get the guard!" shouted Rake. "Don't let him by. Stand across the entrance!"

A shuffling of feet echoed from the vault. Curses and groans filled the pit. A man went down. Another worked in greenish gloom.

Big Scar heard the clerks and special officers shouting, at the top of the stairs. They called to each other. They stumbled and fell as they attempted to find their way to the street. Someone shouted "An eclipse." This cry was taken up.

There followed, within a few seconds, a roar and a rack of an explosion. No light showed through the pit. An acrid odor of TNT reached Big Scar's nostrils. He groped and struck the outstretched arms of the vault's guard. The two men gripped and went to the floor together.

"All right!" shrieked Rake. "All right, get the bag, don't snap off the switch; follow me upstairs!"

Big Scar hooked his right elbow and crushed his fist under the guard's jaw. He searched about the basement for the bag. He touched the edge of a desk. He heard a hissing at his feet. Stopping he lifted the bag. He felt along the stone wall until he had reached the first step.

"Where are you, Rake?" he shouted huskily.

"Right here, Scar!"

The yegg felt Rake's breath on his neck. They started up the stairs. Turmoil was in the corridor of the Trust Company. A panic-stricken group of depositors surged together in the blackness.

"Turn to the left!" ordered Rake coolly. "Now, through here! Now, to the left again. Now this way. We're on the sidewalk."

Blind Men

"Good Gawd!" was all that Big Scar could say.

They felt their way along the side of the building. They reached and tapped the stones ahead of them with their toes. Like two blind men they progressed in the direction of the taxi. The greenish glow grew thinner.

A woman shopper bumped into the bag. It slipped from Big Scar's arm and fell to the flagging. The arc flamed through the leather. It died and allowed the afternoon sun to penetrate the veil. Both crooks stood

near the curb and rubbed their eyes. Rake glanced back.

The men at the entrance to the Trust Company were staring confusedly around the Avenue. An ambulance rang a warning from a side street.

"Come on!" ordered Rake. "You broke the crystal when you dropped the bag."

Big Scar grinned at a frightened woman who had shrunk into a doorway.

"Th' skirts again!" he muttered, lifting the bag and hurrying after the cracksmen.

They piled into the taxi. Rake ordered the driver to take them to Sixth Avenue and uptown.

"What happened?" asked the chauffeur. "Fire?"

"It's out now," said Rake. "Step on the throttle and get us to the first subway express station."

"How about Times Square?"

"All right, hurry!"

Big Scar opened the bag. He touched the carbon and searched for the crystal. He found a number of fragments and showed them to Rake.

"Th' skirt done it!" he exclaimed. "If I hadn't bumped into her—"

Rake gripped the yegg's arm.

"You were careless."

"Me! Me eyes were blinded."

"We got everything that was in box 713, Scar. That's enough for one day."

"Let's see 'em, Pal."

Rake opened his coat and glanced inside his pocket. "Looks like stocks and bonds and legal papers," he mused, without drawing them out. "This should right the wrong Pascal did to Betty and her mother."

"Where will we get another crystal? I kinda like this machine. I need it in me business."

Rake stared at the subway kiosk they were nearing. He sprang to the curb and paid the driver.

Clutching the yegg by the wrist he urged him into the express station where they took a train for Van Cortlandt Park, then changed to a surface car that passed through Yonkers and Hastings.

A second taxi was chartered to finish the journey to Ossining. Night had fallen before they wound through the village and were guided up the hill that led to Pascal's house.

Betty heard the honk of the horn, and came out on the porch. Rake told the taxi-driver to wait. He entered the house and said to Big Scar:

"Leave the bag in the hall, Jones. Go upstairs and pack Miss Pascal's suit-case. She's going home, soon."

"Did you get the things for mama?" she asked him concernedly. Rake waited until the yegg had reached the top of the stairs.

"Yes, I got them! Here's the stocks and bonds. They were your

father's. Now, they are yours. I give them to you gladly."

Betty took the packet. "How can I thank you?" she said to the cracksmen.

Rake's face pressed close to hers.

"By leaving here," said he. "By leaving me and forgetting you ever met—your uncle."

"I don't think I can ever do that."

The tail-light of the taxi that carried the girl vanished over the hill in the direction of Ossining and the railroad station by the river.

Big Scar leaned against a porch-post at the head of the steps. He clumsily rolled a cigarette, and pasted it together. He poised it between his thick lips, then struck a match.

"Pal," he said. "Say, Pal, th' skirt beat us."

Rake stared at the road over which the girl had gone.

"Pal," repeated the yegg. "We c'uld ov used that crystal on a First National crib an' copped all ov a million in kale."

"I'm glad we didn't!" declared Rake. "Betty's good will is worth more than a million dollars."

"Can't we try another crib?"

"We—might—if we could get another crystal. Where are we going to get one? Pascal won't supply it. Remember he was stalled west on a fake telegram. The Green Glow may never be created again."

THE END

Crime in Business

(Continued from Page 356)

One firm in the east, which did a large mail-order business, knew that it was losing a considerable amount of money through the activity of a few employees, who could never be caught. The president of the firm proceeded to fingerprint all employees, without their knowing that a record was made of their fingerprints. This was done by showing each employee a letter, and asking whether he or she knew anything about it. The person in question, naturally, would take the letter in his hand for a few seconds; which was sufficient to ensure a perfect imprint on the back of the letter, as it had been prepared for the purpose. These fingerprints were then indexed by the president himself.

Then the president proceeded to send some cash orders, with which brand-new bills were enclosed, as if given to the firm in payment for merchandise. These bills, too, had been prepared. Inasmuch as

the letters had been mailed from the suburbs, it was easy to know when they would arrive in the office. By asking a few of the suspects to change a ten-dollar bill, the bills were easily identified, first by number, then by fingerprint; and, in each instance, only two different fingerprints appeared on the bills. It was found from this that the mail openers worked in unison with the shipping departments; that they extracted the money from the mail, and surreptitiously sent the order to the shipping department, which filled the order. Thus the firm was out the money. It took only a few hours to make the guilty ones confess; and, after changing the system, the firm had no further losses.

Similar cases will come up from time to time; and it behooves every business man to keep his eyes wide open in order to stop losses. A little scientific detective work will pay good dividends.

A Denizen of the Underworld

(Continued from Page 329)

Was there any particular place where a car would be likely to stand?

Then he remembered the shipping clerk had told him that they always spotted a car at the unloading platform at night, before they went home, so that it would be ready for the morning shift to commence unloading when they came on duty.

And so there it was, every night, right up against the bumper, and in exact position to be tapped from a hole in the ground.

The hole, Brewster imagined, would come up through one of the wooden ties of the track, where it would not be noticed, and where it would not be likely to get stopped up. But how did this man discover that the tunnel passed directly under this spot? and how had he been able to locate the position of the platform from within the tunnel?

The Secret Revealed

These were mysteries he was still endeavoring to solve when after an absence of perhaps half an hour the man returned with his lantern.

He took up the sack and oilcloth, and promptly marched away.

With many misgivings the detective stealthily followed him.

As they progressed, Brewster tried to imagine in what locality they were, and in that way keep his bearings. After journeying for some time he decided that they must be in the very near vicinity of the steps in the side hill that were overlooked by the schoolhouse.

He readily conceived that this might be the home and also the cache of the sturdy thief.

As he crept forward he pictured to himself how the man might live in spacious and comfortable quarters in one of the high and large concrete compartments; he might even have the best of furniture and all the comforts of a modern home in this den, hermetically sealed from the outside world. In another compartment would surely be an abundance of room to store all the seed he could steal in nearly a month.

But then there was another problem. How did he get it out to market?

Well, no matter. The main thing was to follow him to his lair, and some other day come back and capture him and such loot as he might have on hand.

At length Brewster saw the light emerge into what seemed to be an open space; for the surrounding walls of the tunnel disappeared, and only dim shadows were visible.

Fearing that he might lose sight of the light altogether, Brewster hurried forward and soon drew near

enough to see the man with his burden stop at the foot of a heavy ladder at the other side of a bare concrete room.

The man shifted his sack to the other shoulder and commenced to ascend the ladder.

Surely this could be no place other than the substructure of the approach to the school.

The man clambered steadily to the top of the ladder, perhaps twenty feet; and stepped through a rough hole, apparently broken in the wall.

Brewster hesitated. Should he take a chance and follow him farther, or should he make a safe getaway and return on the morrow, now that he knew where to go?

Yes he would go back. But first he wanted one full look at the thief.

CHAPTER V

Trapped

With extreme caution and in pitch darkness he climbed the ladder and looked through the hole. Some little distance away he saw the dim light of the lantern, and the faint outline of another hole such as he was looking through. In the intervening space he could make out a wide walk of planking.

Then the light became dimmer, as if the bearer had gone around a corner.

The crouching detective followed in haste, intent on that one last glimpse.

Lest he might make a mis-step and fall, he sank to his hands and knees, and felt the way before him.

Arrived at the other opening, he came abruptly upon the light in the middle of a large square concrete bin with glazed walls, resembling the bins in the oil mill. Stretching across the bin was a narrow runway, consisting of two small planks cleated together. On this runway, not twenty feet away, was the man emptying his sack. He had set the lantern down and was pouring the contents of the sack into the bin.

The seed as it slid out of the sack and fell into the depths made a soft flowing sound, like frothy little waves rolling up on the sandy shore of a small lake.

The detective was somewhat alarmed to find himself so close to the criminal. He stopped short like a cat that comes around a corner and meets a dog.

After one comprehensive look, he swung around to retreat.

But as he moved, his foot struck a loose stick of wood which had evidently been leaning against the wall, knocking it over with a resounding whack.

In an instant Brewster knew he

had lost all chance of escaping unseen.

The burly man on the runway swung round with an angry oath. "Vas—ist?" he bellowed in a powerful voice that seemed to shake the very walls.

Brewster sprang to his feet, while the other snatched up his lantern and drew a huge knife from his belt. The detective knew that to retreat would be only madness, for he was unarmed and in a strange and dangerous place. Under the spur of necessity his agile mind acted with the quickness and precision of a steel trap.

Snatching his flashlight from his pocket, it was but the work of an instant to turn it in the direction where the telltale stick had fallen.

The beam revealed a short length of two by four, perhaps two feet long.

Brewster grabbed it up and turning with lightning rapidity advanced a step to meet the rush of his oncoming antagonist. If only he could smash his opponent's light, his own flash would give him a distinct advantage.

With one swift glance he measured the distance and let fly the piece of timber.

There followed the sound of a ringing blow and the breaking of glass.

For a brief instant all was dark.

Brewster realized that he had inadvertently turned his own light off as well as smashing that of his antagonist.

Determined to blind his assailant temporarily and follow up his advantage, he quickly snapped the light on and directed it along the runway.

The sight he saw in that circle of bright light stamped itself indelibly upon his memory.

Discovery

In the confusion of that sudden and unexpected moment of darkness, the man had stumbled and thrown up his arms to save himself.

The bright blade of the knife reflected back the rays of the flashlight.

Brewster caught one fleeting glimpse of the fendish face of the head-cooper, livid with rage.

Then the wild shape toppled over into the sea of flax seed in the well below.

For a long moment the detective stood, a frozen statue, directing his light on the spot where the treacherous, almost fluid seed had closed over his adversary.

Then he turned away, as one might turn helpless from a sinking ship.

"Drowned in flax-seed!" he muttered, as he fearfully sought the head of the ladder that had brought him to this terrifying place.

THE END

Rays of Death

(Continued from Page 355)

The Deadly Enemy

The girl gasped: "Then you think—"

"I think there is a cruel and deadly mind with which we have to deal," he said: "It is for this reason I do not wish anything to be disturbed. Have the reporters been calling you at all Miss Mallory?"

"Yes. Every day, to ask how father is. It is known he's ill. All our acquaintances inquire, too."

"Well, when they next call, tell them that he is much better and will get well. Tell them that he has been removed to another room, but do not give the real reason. This is important. Will you do that?"

"Why, of course. But do you think he will recover?"

"Yes, I think he will get well. Now that he is out of the radium's vicinity, he ought to improve rapidly if correctly treated. But report it as already accomplished, will you not? Tell the doctors to do so, as well. It is important."

She sobbed with relief, as he repeated that he was sure her father would recover. He could not resist taking her hand in his.

"Oh," she cried, "I knew that you would help me! I felt it, Dr. Lawson."

"Call me Young," he begged.

"Yes, of course I will. And you'll call me Edith, won't you? It's been hard, to have no one to call on, no one to depend on. Father and I have always been close together. In spite of his temper, and many bad points, I adore him. He's always been good to me."

"I love him for that, then," said Lawson, in a low voice.

The girl grew calm as the chemist talked to her soothingly.

"Will you stay here?" she asked: "You can have a suite."

"Yes. I thought I might be needed, so I brought a bag. I have been growing steadily suspicious concerning the proximity of radium to your father; and I wish to see if I cannot trap the thief. I will tell you that I have located the radium stolen from your father, of that I am almost certain."

"Oh," she murmured, "I think you're wonderful!"

"I have in my bag a spinthariscopes, an instrument used in identifying radium emanation. It is formed of a zinc-sulphide screen, which glows when the alpha particles strike it. There is a magnifying glass which helps to identify the glow. You know, it is thus that the luminous paints used on clock dials are made."

She accompanied him to the door of the bedroom which her father had formerly occupied. Lawson ordered her to remain outside.

"It is dangerous to enter the room," he said. "I will not be surprised if

the nurses and physicians develop burns."

"But you," she cried. "If it is dangerous for me, it is for you!"

She held him back, and would not allow him to make the test for radium then. He promised to wait until the next day, when he would be able to go to the city and obtain lead impregnated gloves and a screen behind which to work.

"I do not know just where the radium is hidden," he said, "but I will locate it. However, I wish to leave it there for a few days."

As the chemist said goodnight to the girl, she threw her arms about his neck, and kissed him. He seized her in his embrace.

"I love you," he cried. "I love you!"

"And I love you," she murmured.

CHAPTER IX

The Radium Found

Young Lawson awoke in the great Mallory mansion with a sense of joy. He sprang from bed, and greeted the sun which streamed in at his window with a smile, for it pleased him that nature should be happy. It was in the fitness of things.

He dressed and went downstairs. Edith was before him, and greeted him with a kiss. "Father's better," she said: "He slept well. When I tell everyone that he is recovering, it will be the truth. And, if you have found the radium, it will make him happier, and help him along; for his affairs would have been in a bad way had it been lost. The factory, though insured, was heavily mortgaged—as is this place. Fighting the foreign monopoly has been expensive, as well as the production of the radium bromide. But there are several orders to be filled, in the near future, which will set father on his feet again."

"Well," said Lawson, "I assure you I am certain that the radium is hidden within the room where your father was lying. Near his bed, probably. That explains the marauders who came upon the estate. They came to plant the radium so that your father would be burned. Far from being disappointed, as I first thought, that he was not at home, they waited for an opportunity to get in while you and your father were out. The footman must have heard them when they were leaving, after the work of hiding the radium was finished. By the way, your father mentioned 'Nora' several times in his delirium, as well as yourself. Who was she?"

"My mother," said the girl. "She was so good, and kind, Young. She always tried to make father control his temper. I can remember her soothing him from the time I was a little child. They met in Colorado, while father was prospecting out there, and before he became rich."

"And 'James'—who was he? Your father also mentioned that name?"

"That was James Tholl, my father's friend, who perished in the terrible Bad Lands over twenty years ago."

It was all Lawson could do to tear himself from the girl's company. He had business to attend to, however, and he went into the city and visited two or three places. He returned in the afternoon, and found that his equipment had been already sent and was awaiting him.

"Several of the papers called, and I told them father was getting better," said Edith.

"Good. Now I must go to work in the bedroom where your father was, and where I am sure I will find the radium."

Lawson, with the aid of the butler John, carried the lead screen and his other equipment to the door of the chamber. There he donned a helmet made of lead rubber and gloves of the same material.

"Here's the spinthariscopes," he said, showing the girl an instrument which looked like a fat microscope: "There is a zinc-sulphide screen in it and, by placing a small amount of radium within and looking through the glass, it is possible to see tiny flashes as the alpha particles strike the screen. But first, I must locate the radium."

Lawson, pushing the screen before him, entered the room which had almost become a room of death. The girl, standing in the corridor, listened anxiously.

For some time, Lawson remained within the room. She heard him pulling down the dark shades, and walking about. At last, he came out.

"I have found it," he said.

"Where was it?"

Lawson shook his head sadly: "Darling, someone has tried to kill your father in a horrible and cruel way. A slow death was plotted for him by this unknown assassin. The radium bromide, stolen from your father's factory, is hidden in the folds of the mattress in glass tubes. They are protected from breaking by the layers of wool. A seam was ripped underneath, and then sewed up carefully; so that it could not be seen from a superficial examination such as a maid might give in making up the bed. I took out only one tube, and subjected it to the spinthariscopes test; and it was radium. I am certain that the full thirty grams which were stolen are hidden in the mattress. It is no wonder that your father is in such condition."

The full realization of mysterious evil, brought on by this concrete evidence that the radium was really within her father's former room, put

**Spinthariscopes.* A device for showing fluorescence due to radium by the scintillations caused by impact of the alpha rays thrown off by it against a fluorescent screen.

there by a malignant hand, caused the girl to cry. Lawson comforted her as best he could.

"Now, darling, don't tell anyone we have found the radium. I wish to trap the thief. You are sure that you told the papers his room had been changed, and that he was much better?"

"Yes."

"Then, if the assassin is as desperate as he has so far proved to be, he may make an attempt to recover the radium. Also, I must ask Moran to send more men out here, to guard your father's life. If the man or men who are trying to kill him have gone to such lengths, they may go farther."

The Trap

Two more of Moran's men were now stationed outside Mallory's present room, several windows down, on the same floor as the bedroom where the Radium King had been almost burned to death by his own radium.

"Watch closely," ordered Lawson: "Allow anyone who comes to enter the room where Mr. Mallory formerly was. In case you see anybody climb that balcony and try the windows, tap on the library window. I will be in there. Be sure I answer you; this is important. But—more important still—do not allow anyone to get into Mr. Mallory's present chamber."

The shadows promised faithfully to obey's Lawson's orders.

The chemist passed the evening happily with his sweetheart. She depended fully on him now.

"You're wonderful," she repeated, over and over.

Though Lawson had come in for more than his share of scientific accolades, the admiration expressed by the girl meant more to him than all the rest.

She went up, every half hour, to see how her father was. Mallory had been able to eat. Dr. Morse reported his heart improving; and the radium burns, while terrible, were no longer spreading. He slept a great deal, and was quiet.

But Lawson, occupied though he was by his conversation with Edith Mallory, kept rising and looking out the window.

"What are you watching for?" she asked.

"Fog," he replied.

She shuddered. "Do you think he will come, then?" she asked.

"Perhaps he will, perhaps not."

She left Lawson at midnight; and the chemist, kissing her good night, went to take up his vigil in the library, which faced the rear of the house. He sat in the darkness, smoking cigarettes. While he had not slept that day, he was used to irregular hours through his laboratory research, which kept him up for two or three days and nights at a time.

In the chemist's pocket was a vial of strong ammonia and an automatic pistol.

The great house was still. A little

breeze rippled the trees outside. The night was lit with stars; and a small slice of moon was dropping behind the tree tops. Lawson sat ruminating upon the radium theft. While he had recovered the missing bromide for Mallory, the assassin who had planned such a frightful death for the Radium King was still at large. To allow such a man, with such hatred as he had shown, to go free, would mean that Mallory would never be safe.

Moran, the detective, had done his best. His shadows and investigators had looked up every possible person. Even Keating, the manager, had been carefully checked. But no success had come.

There was a chime clock in the library, and it struck one, then half-past. Two o'clock; and still the chemist sat in the great armchair, staring out into the night, scarcely moving except to light a cigaret or throw one away.

The evening papers had carried a front-page story about the recovery of Byfield Mallory. Lawson had seen them.

One, two, three! The chimes spoke again. All was quiet, save for the faint sound of the breeze in the trees.

Then, a tap-tap on the window near Lawson. The chemist rose silently, and approached the glass. Outside, he saw the shadow of a man.

The window, left open by the chemist a couple of inches at the bottom for just such a contingency, served as a warning signal, by the tap on the glass, and as a speaking-hole.

"It's Ulman," whispered the man outside: "Someone has just climbed the balcony and is entering the bedroom where Mr. Mallory formerly was. What shall we do?"

"Was he alone?"

"Yes."

"Collect your men and be ready under the balcony when I throw on the room lights."

"Right."

Lawson, his heart beating swiftly—for he was sure that he was about to trap the unknown assassin, the thief who had blown up the factory and stolen the radium—ran out into the main hall and up the carpeted stairs.

A dim night-light burned in the upper hall. Lawson carefully extinguished it; then crept on his hands and knees along the corridor, to the door of the radium room.

He lay before the door, his ear pressed against the crack at the bottom.

The Demon

Silence greeted him at first—dead silence. Then he heard a faint scratching noise; and a beam of light, evidently from a flash, lit the crack for a moment.

Lawson allowed the intruder several minutes. He wished to catch the man red-handed, with the radium bromide in his possession.

At last, the time had come. The chemist, drawing his pistol, placed his

hand on the doorknob. He turned it slowly; he had, among other things, oiled it carefully during the afternoon. The door opened an inch, then two inches; and Lawson looked in.

A dark figure, fantastically clad, was bending over the bed, so intent upon it that Lawson's opening of the door had not been heard. The flashlight had been extinguished. The intruder held something in his hand, however; and, as he worked, Lawson saw tiny flashes in the darkness.

A strange glow illuminated the object in the marauder's hand. "Zinc-sulphide screen," said the chemist's brain, and he was jubilant in one way; for he had known that it was a man familiar with chemistry and radium who had been attempting to torture Mallory to death. But his brow was knitted.

Lawson waited. The intruder, whose vague form was black in the dark room, put down his screen and began to rummage in the mattress.

"Ah!" The chemist sighed relievedly. He had been puzzled for a moment by the screen. But he saw the man in the room investigating the mattress. The flashlight gleamed, on the glass of one of the small tubes.

Lawson put his hand around the corner, snapping his flashlight.

"Throw up your hands!" he ordered sternly, leveling his automatic.

A bizarre figure confronted him. A black gown of dull sheen, a black hood of the same material, and goggles gave the man a horrible appearance of unreality; he seemed like some frightful demon from a mad house. On his hands were black gauntlets.

But to Lawson, the figure was quite natural. It was the dress of a radium chemist; a lead-rubber dress made to protect the skin from the rays, when lead screens were not available.

"I've got you," said Lawson quietly: "Take off your hood, and let me see your face."

The intruder did not move. He stood, frozen. "Take off your hood," ordered Lawson again.

The figure stood, like a statue. Suddenly, a noise behind Lawson caused the chemist to turn his head for an instant. As he did so, the black figure made a sudden backward move. A scream rent the air, and then a dull thud reached the frantic Lawson's ears, for he had realized that his sweetheart was behind him.

She had fallen, fainting at the sight of the intruder. The black-clad man dove, headfirst, through the window; as Lawson fired once after him, breaking the upper pane.

The chemist raced to the window. The intruder, his clothing crackling, was dropping to the lawn.

"Ulman, Harte, Simmons!" shouted Lawson.

The shadows were at hand. Lawson, stretching out the window, saw several dark figures leap on the neck of the fugitive.

"Bring him inside!" he ordered.

He hurried back to the prostrate form of Edith Mallory. He raised her

head and kissed her. She opened her eyes a moment later.

"Oh, Young! Are you all right? I was afraid for you, I could not sleep. I came to see if you were still alive, and saw that frightful thing staring at me."

"They are only clothes used sometimes by research workers handling radium elements," he explained: "Come, the shadows outside have captured him. Hadn't you better return to your room?"

"No, no. Let me go with you."

"Very well. Come along."

Lawson went downstairs. He opened the front door, and met Ulman, Harte, Simmons and Wright, the four shadows, as well as the lodge-keeper of the estate. Also, two other detectives

greeted the chemist's eyes.

"Here he is," said Ulman. "We got him."

They pushed the prisoner into the lighted hall. And, as Lawson and Edith Mallory looked at him, with his hood jerked off by the detectives, they exclaimed in surprise.

It was Charles Sommers!

"Sommers! So it was you, after all!"

The two extra detectives were the shadows who had been put on the trail of the young research chemist by Moran.

"We've been following him right along, Mr. Lawson," said Brown, one of them: "He came out here tonight, with a suitcase. He puts on this black suit and sneaks into the estate by a

side gate. We trailed him up here; connected with Harte and Ulman, and they told us you had just gone upstairs to trap him. So we were ready for him if he came down. This is his first suspicious move."

"Good, you've got him. Bring him in here."

Lawson, with Edith, and the whole troop of guards, went into the library, where the chemist put on the lights, and seated the prisoner in a chair.

"Well, Sommers. What have you got to say for yourself?"

Sommers shrugged. "What is there to say?" he said: "If I tell you the truth, you'll laugh at me."

"No, no. Confess, for you've been caught red-handed."

END OF FIRST INSTALLMENT

How Good A Detective Are You?

See Instructions on Page 299

- | | |
|--|--|
| 1—Was there a woman on the floor?..... | 19—Was the room on the ground floor?..... |
| 2—Had there been someone else there?..... | 20—Could you see into a garden?..... |
| 3—Man or woman?..... | 21—Was the room a living room?..... |
| 4—Had there been a struggle?..... | 22—Was there a clock in it?..... |
| 5—Did it appear to be murder?..... | 23—What kind?..... |
| 6—Or suicide?..... | 24—Was there a fire-place or a stove in the room?..... |
| 7—Did the man leave anything behind?..... | 25—Was there any living creature in the room?..... |
| 8—How was the woman killed?..... | 26—What was it?..... |
| 9—Was she robbed?..... | 27—Were there any bottles on the table?..... |
| 10—Might she have been the victim of an accident?..... | 28—Were there any flowers in the room?..... |
| 11—Why not?..... | 29—How many chairs were in the room?..... |
| 12—Had it been a drinking party?..... | 30—Any pictures on the walls?..... |
| 13—Was the table upset?..... | 31—What time was it?..... |
| 14—Was anything broken?..... | 32—Was the cloth pulled off the table?..... |
| 15—In what position was the woman?..... | 33—Did you see a man's cane?..... |
| 16—Was the door open?..... | 34—Did you see a man's hat?..... |
| 17—Was the window open?..... | 35—How many tables were in the room?..... |
| 18—Was the season summer or winter?..... | |

The Invisible Master

(Continued from Page 313)

way. Fearing Gray's confession, he killed him, and disposed of his body here in the laboratory. He had the knowledge to do that, and I've found that on that afternoon he received from the supply-rooms here an inordinate order of acids which were without doubt used in the disposition of Gray's body. However it was done, there is not the slightest doubt that on that afternoon Gray, and even his body, passed out of existence in this laboratory.

"Then Grantham went on with his plan, changing it somewhat, no doubt, to fit in with this new circumstance. That night he struck himself a painful but not heavy blow on the head with some wooden object—you remember the doctor said the blow was from the side?—and pretended to be lying stunned when you, President Ellsworth, came in. When the police came he, without seeming to want to do so, threw the responsibility of the attack on Gray as much as possible, and told of his projector that had been stolen by his attacker, and that would make a man invisible. He had already prepared a mocking letter addressed to himself as from the Invisible Master, and while talking with Carton and me, laid the letter on the

table where I found it. The officers at the door had seen no one go in or out, we knew or thought we knew that someone was at large with an apparatus for attaining invisibility, and since we never dreamed of Grantham having left the letter, we had no doubt whatever but that the Invisible Master, whether Gray or another, had actually entered the room invisibly and left the letter for us.

"This was Grantham's second step, his establishing the idea that someone was at large with a projector that could make him invisible, that the Invisible Master was at large and ready to commit any crime. That idea was established in all the city by the newspapers in the next day or so, and so strong was the evidence in the demonstration of his discovery that Grantham had given, and the greatness of his reputation as a scientist, that almost all did believe that such an invisible man, an Invisible Master, was at large.

"Now what would naturally result when almost all in the city believed that? Would it not result in many people seeing a chance to commit crimes and then blame them on the Invisible Master? You know that there are hundreds of thousands in a

city like this who long to commit some crime, theft or murder or the like, but dare not because there would be no chance to shift suspicion on someone else. A man in an apartment with neighbors all around can't shoot his wife and claim someone else came in and did it, for he knows that in ninety-nine cases out of a hundred it would soon be established that no one had gone in or out of his apartment at that time. But if he could blame it on someone invisible? You see what it means? Grantham had spread, had insisted upon spreading, over all the city the thought that the Invisible Master was at large in it. So at once there would be countless people who would see a chance to commit crimes and blame them on the Invisible Master! The thing was as certain as human nature!

CHAPTER V

From Beginning to End

"The first was young Harkness, the teller at the Vance National. He had been speculating in stocks, had lost thousands of the bank's money, and was desperate, with discovery near.

(Continued on Page 375)



THE READER'S VERDICT



THE case of the PEOPLE vs. SCIENTIFIC DETECTIVE MONTHLY has gone to the jury. The reader jury are now assembled in the Court Room of Public Opinion, the judge, Honorable Costik Critik is sitting on the bench and is ready to render the verdict.

He has instructed you, ladies and gentlemen of the jury, to render your opinions in writing, addressing them to the Editorial Chief of the SCIENTIFIC DETECTIVE MONTHLY. It makes no difference to the judge

whether your letter is complimentary, critical, or whether you are ready to shoot the Editorial Chief on sight—all letters are equally welcome. All letters of interest, as many as space will allow, will be published here for the benefit of the entire jury.

Due to the large influx of mail, no communications to this department will be answered individually unless 25c in stamps to cover time and postage are remitted.

PSYCHOPATHOLOGY OF CRIME

Editorial Chief,

SCIENTIFIC DETECTIVE MONTHLY:

As you are interested in the psychopathology of crime, I think you would be interested in the enclosed extract from THE NATION of December 25th. See how my mind printing it in your magazine, and see how many of your readers agree with it—and me?

CLARENCE GALTON,
Danville, Illinois.

(We feel that this extract from THE NATION is worth reprinting, and therefore give it below:

The latest riots at the New York State Prison at Auburn lend special timeliness to this short analysis of the new penal codes of Prussia and Mexico. The prison riots of the past five months have been attributed to overcrowding, poor food, bad cell conditions, and the lengthening of sentences under the Baumes laws. But these are not fundamental causes. As long as our penal system is based upon the vindictive and unscientific theory that punishment is a remedy for crime, the reason for these outbreaks will con-

tinue to exist, no matter how many millions of dollars are poured into new and larger prisons. The only permanent solution lies in the adoption of scientific methods of dealing with crime. Such methods Prussia and Mexico as well as the Soviet Union are now attempting to put into operation—EDITOR THE NATION.

I think that all thoughtful people will applaud the idea expressed in the extract above—Editorial Chief).

CHEMICAL CLUB MAKES RESOLUTION

Editorial Chief,

SCIENTIFIC DETECTIVE MONTHLY:

We enclose the following resolution:

Whereas: Many of the members of the Chicago Chemical Club are inveterate readers of detective fiction, and

Whereas: Hitherto all detective fiction, or most of it anyway, has been written on a standardized formula: whereby a large number of persons were brought under suspicion for a crime; and at the end of the story the crime was

fixed on the only person who did not come under suspicion, and

Whereas: Any experienced detective story reader could always tell that the only innocent-seeming person was really the guilty one, thereby losing much of the pleasure of reading the story, and

Whereas: Hugo Gernsback, editor of SCIENTIFIC DETECTIVE MONTHLY, in the January issue of said magazine, published a story called "The Eye of Prometheus," by R. F. Starz, in which L. M. Hornsman, the lawyer, or Heinie Lanther, or the detective himself seemed the only possible guilty ones because they seemed so innocent; and in which suspicion pointed to Owen Emmet early in the story, thereby completely exonerating him in the eyes of experienced detective story fans, fooling us completely.

Therefore: Because of his revolutionary departure from the hackneyed type of detective story in which the real criminal is always completely whitewashed until the end of the story

(Continued on Page 371)



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All about us lies a tremendous amount of untouched power: in the sun, in the cosmic rays, etc. This power, if obtained and concentrated, might be put to great use.

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We know very little about the real possibilities of matter. There are great civilizations that have found and utilized these possibilities far beyond our own conception.

10—THE ELIXIR

By H. W. Higgins

Brain power is often dependent on the influences of our glands. By proper stimulation of some kind, it may be possible in the future to produce great geniuses.

11—THE THOUGHT TRANSLATOR

By Harab Ebario

Mental telepathy is becoming generally accepted as an accomplished fact. Some of its uses, especially by mechanical means, may be very tragic or very amusing.

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It should be possible in the future to create living beings synthetically, and when this is done, there will be some amazing results.

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Mr. Farrer is evidently an expert in his subject. He shows how, by proper control, it may be possible to change the entire course of human life.

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Reader's Verdict

(Continued from Page 368)

BE IT RESOLVED: That the Chicago Chemical Club hereby extends a vote of thanks to said Hugo Gernsback for his revolutionary work in the detective fiction field, and petitions him to keep up the good work, and the secretary is hereby instructed to mail a copy of this resolution to Mr. Gernsback.

(Unanimous vote, Aye)

EMMA THEISEN,
Secretary,
6 So. Seelye Avenue,
Chicago, Illinois.

(This memorandum speaks for itself, but we assure our readers that we would not publish such a commendation, except for the interest aroused by the fact that we think Middle Western readers will be interested in the existence of the Chicago Chemical Club, and we ourselves, would like to know of other clubs with similar aims and scope.—*Editorial Chief*).

WANTS TO LEARN

Editorial Chief,

SCIENTIFIC DETECTIVE MONTHLY:

I am writing to compliment you on your new magazine, the **SCIENTIFIC DETECTIVE MONTHLY**.

I have been waiting patiently for a long time for a magazine of this kind, as I heartily believe that within a very short time old police methods and political appointments in the police departments throughout the country will be obsolete and psychology and science will predominate.

I am very much interested in the study of criminology, from both the scientific and psychological viewpoints. I have attended one of our local universities and studied criminal and abnormal psychology for the past three years and have found it more than interesting. However, in my studies, I have been unable to obtain any books on the scientific end, and knowing that you have a number of assistants on your staff who specialize in this work, I would appreciate knowing if it would be possible for me to obtain information as to where I could purchase some works. Any information that you may be able to give me on these subjects will be more than appreciated as I have tried for several months to purchase works of this kind but have been unable to get the names of the publishers.

Knowing as a rule you publish letters of this kind in your "Reader's Verdict," I would appreciate it immensely that if you decide to print this letter that you not publish my name.

(The Unknown),
26 So. Fourteenth Street,
Pittsburgh, Pa.

(Write to the American Academy of Political and Social Science, 3622 Locust Street, Philadelphia, Pa., and ask them for publications dealing with Police Work and Scientific Criminology. Also ask any large publisher for their catalogue.—*Editorial Chief*).

DISAPPOINTED!

Editorial Chief,

SCIENTIFIC DETECTIVE MONTHLY:

Your first number of **SCIENTIFIC DETECTIVE MONTHLY** was really a disappointment to me and here are the reasons: The greatest disappointment was in Mr. Reeve's story (I had never read any of his stories before) it was nowhere as good as I expected. It is classed as *Fair* in my listing. The *Bishop Murder Case* I had read before. The *Eye of Prometheus* was only good. The *Perfect Counterfeit* was good. The *Fast Watch* and *The Campus Murder Mystery* made up for the others partly, by being very good. I once more knock and then a bunch of rorts. I do not like your cover artist. He is I believe even worse than Paul in drawing human faces.

The most interesting part of the whole magazine was your *Memory Test*. *Immediate Recall*. I thoroughly enjoy it and so does the rest of my family. It especially sharpens a person's wits.

CLARENCE R. LIETZ,
1333 7th Ave., No.,
Fargo, N. Dak.

(Yes, it is seldom that good scientific artists can draw faces. The two types of pictures are entirely dissimilar, one depending on a good draftsman's technique, the other on an entirely different talent. Which do our readers want most: good scientific descriptions or good characterizations in the illustrations?—*Editorial Chief*).

(Continued on Page 372)

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Reader's Verdict

(Continued from Page 371)

813

Editorial Chief,
SCIENTIFIC DETECTIVE MONTHLY:

I have just re-read the January number of the SCIENTIFIC DETECTIVE MONTHLY and can readily pronounce it far ahead of anything in its field. Mr. Reeve's article was very gratifying because it checked practically everywhere with my opinion of the various authors.

If this letter should find its way into your magazine I ask that you enter my plea for someone who owns a copy of "813" by Maurice LeBlanc to get in touch with me. I have been trying for about five years to get a copy of it, but since it has long been out of print my efforts have been in vain. I of course refer to the English translation of this book.

Of the stories in the January number I liked "The Bishop Murder Case" and then "The Mystery of the Bulwago Diamond" best. The others were also very good but these two just hit the spot.

Wishing you the best of luck with this publication I remain

C. N. FLANDERS,
2227 McGee Avenue,
Berkeley, Calif.

(Perhaps someone would like to get in touch with Mr. Flanders. We have read 813 by Maurice LeBlanc, three times, and a copy lay on our desk only recently. But unfortunately it disappeared soon after the visit of one of our stenographers—who no doubt "borrowed" it. It is quite a task to keep track of the gigantic criminological library in this office.—Editorial Chief.)

DID WE SLIP UP?

Editorial Chief,
SCIENTIFIC DETECTIVE MONTHLY:

I like the stories you publish in your magazines, but there are many stories you would do better to leave out. Now I am very chary of believing that science can be used so much in criminal detection. It is "up to you" to prove this to me. By the way, who discovered the fingerprints system if Bertillon did not do it, as you say in your editorial last month? I think you have slipped up here somewhere.

A. M. MacDERMOTT,
2745 26th Avenue,
Oakland, California.

(Contrary to public opinion, Bertillon was for a long time opposed to the fingerprint method which displaced his own anthropometric system. The men who made fingerprints of us to the police were two Englishmen, Sir Francis Galton and Sir Edward Henry, and also the Argentinian, Juan Vucetich.

Following Gross and Bertillon, scientists became interested in police technique, and during the first decade of this century a number of new methods were perfected. I feel sure that our forthcoming issue will open Mr. MacDermott's eyes to scientific police work in this and other countries.—Editorial Chief.)

BOSHI

Editorial Chief,
SCIENTIFIC DETECTIVE MONTHLY:

Your first issue was poor—not up to your usual style. The February issue was much better. But don't have so many people standing about in the illustrations. I like to see science in the pictures to a story, as well as science in the story itself.

Aulton Wolfe's article was simply bosh! The *Adventures of a Scientific Detective* in the second issue was much better. But the March issue was best of all, and the Robot story just fine. I hope you will run more like this and give us plenty of action.

HARRIET JOLSEN,
42 Penn Avenue,
Ecorse, Michigan.

(Evidently we are improving. In illustrating a story, however, the artist tries to keep to the actual text of the story as much as possible and illustrate just what is happening at the moment. If there are ten persons in a room, he draws these ten persons. But we would like more opinions on this.—Editorial Chief.)

SCIENCE-CRIME NOTES

Scientific Treatment of Prisoners

Public enlightenment on prison methods and routine is being displayed notably in two countries—Prussia and Mexico. In the former country prison psychiatrists are more interested in the causes of crime and the mental and environmental situations in which crime is bred. In consequence, dramatic and fundamental changes are planned in daily life. When some prisoners have served half their terms, they will find themselves promoted to conditions little dreamed of in prison systems elsewhere. Instead of bleak, bare rigor they will have comfort and a certain degree of freedom. Not only will they occupy rooms with curtains at the windows and no bars, but they will eat with silverware instead of tinware, will be allowed to have their own clothing, will remain alone with visitors coming to see them, will write letters inspected by the eye of no censor—and in other respects will lead more of a training-school life than a prison life. The purpose of all this is to cushion the exit to the unfriendly and forbidding world, and to test the improvement which, it is hoped, will have taken place. More important still, perhaps, is the opportunity which will be given them to leave the prison daily, lunch basket in hand to work as free men in neighboring factories and shops, under contracts already arranged by the prison authorities. Thus, they can slowly become accustomed to resuming a normal place in society, can demonstrate their fitness for final release, and can earn money with which to start life not only honestly but effectively. Such are some of the elements in the new program by which Prussia hopes to reform.

We will gladly open our columns to readers' discussions on this subject.

Fingerprinting Automobile Tires

The technique of identification is making strides every day. In these columns we have spoken of identification and classification of bullets, dead bodies, and fingerprints. Now a report comes from Los Angeles that a new identification of hand cars by the tracks of their tires is facilitated by a new photographic "fingerprinting" method developed by David Chapman, attached to the Sheriff's Office in Los Angeles, Calif. It is based on the simple procedure of placing a try-square beside the imprint of the tire tread on the road when the imprint is photographed.

Experience has shown that identification is difficult by photographs alone, even for experts; for it requires computing the focal length of the camera lens, the height at which the camera was held, and other data before the imprinted pattern can be recognized among some 450 tire patterns in existence.

Readers of the *Science Crime* columns of *SCIENTIFIC DETECTIVE MONTHLY* are invited to seek information from us on any branch of criminal detection in which they are interested.

IF you enjoy *SCIENTIFIC DETECTIVE MONTHLY* you must read *SCIENCE WONDER STORIES*, its sister magazine. In *SCIENCE WONDER STORIES* you will find all of the good authors who write for *SCIENTIFIC DETECTIVE MONTHLY*, and there are many stories that deal with aviation and, particularly, space flying and interplanetary trips. Be sure to get the April issue now on all newsstands. Table of contents follows:

"The Evening Star" (Part I), by David H. Keller, M.D.

"The Falling Planetoid," by I. R. Nathanson

"The Return to Subterranea," by Earl Vincent

"An Adventure in Time," by Francis Flagg

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SEE PAGE 356
4-30

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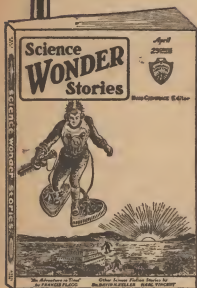
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OTHER CONTENTS OF THE APRIL ISSUE

THE EVENING STAR

By Dr. David H. Keller

THE RETURN TO SUBTERRANIA

By Earl Vincent

PRIZE CONTEST STORIES — The three stories receiving Honorable Mention in the November 1929 Cover Prize Contest, are published.

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OTHER CONTENTS OF THE APRIL ISSUE

THE FLYING LEGION

By George Allen England

HOW HIGH CAN MAN FLY?

Lieutenant Apollo Soucek

THE HEAT RAY,

By O. Beckwith

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BOOK REVIEWS

LADY CAN DO, by Samuel Merwin. 233 pages; size 5" by 7 1/4"; stiff cloth covers. Published by Houghton Mifflin Company, Boston and New York. Price \$2.00.

Elsie Penn was newly engaged as secretary in the home of Mr. Jonas Cuppy, the rich Orientalist. There was a house-party in honor of the magnificent Chinese head-dress that Mr. Cuppy had just presented to his wife. Next morning the Chinese servants had fled, the pearl cap was gone, and Jonas Cuppy was murdered!

SCIENTIFIC DETECTIVE MONTHLY readers will guess from this opening just about what happened. All day Elsie Penn took notes of the police investigation; and then she made a reckless dash into the heart of New York's Chinatown, straight to the man who could clear up the whole affair.

There are, however, no sliding panels and eerie lights in this Chinese detective story, which is in a different style from the ordinary. It is written very clearly and makes easy reading.

THE MAN WITH THE SQUEAKY VOICE, by R. A. J. Walling. 304 pages, size 5" by 7 1/4"; stiff cloth covers. Published by William Morrow and Co., New York.

John A. Masters is implicated in a terrible crime, a ghastly murder that takes place by the gasoline pump at Usher's Garage. It is on this occasion that he sees the Man with the Squeaky Voice for the second time. The first was that night he fled in terror from the dinner table at the Antlers Hotel in Colorado Springs. But he had heard of the Man with the Squeaky Voice from others. Lennox, one of the keenest minds of the Secret Service, had been hot on his trail in Colorado. Janet Orr had seen a terrified pallid face peering out from the shrubbery on a river bank, and had talked with him. And then there was that ominous message which so interested the American crime expert, and his French and English colleagues. This is essentially a book for those detective story fans who like their mysteries to be baffling. Those who enjoyed the two previous books by this author, "That Dinner at Bardolph's" and "Murder at the Keyhole" will not be disappointed in Mr. Walling's latest effort, which is decidedly better than the average detective novel.

IF you are a lover of science fiction, you must certainly obtain the April issue of **AIR WONDER STORIES**, now on all newsstands. This magazine specializes in science fiction in which aviation of the future is featured. You will find here your favorite authors in stories as stimulating and exciting as those in **SCIENTIFIC DETECTIVE MONTHLY**.

Contents of the April issue are:

"Through the Meteors," by Lowell Howard Morrow

"The Flying Buzz-Saw," by H. McKay

"The Meteoric Magnet," by Moses Schere

"The Flying Legion," by George Allen England

"How High Can Man Fly?" by Lieut. Apollo Soucek

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The Invisible Master

(Continued from page 368)

All around him people were talking of the Invisible Master and of what he could do, and Harkness saw in that an idea, grasped at it as at a last straw. He arranged his accounts to show right when it was over, then on that afternoon simply cried out and gave the alarm, stammering that the money had been taken by someone invisible who had snatched it from before him. All believed quite naturally that the Invisible Master had done it! Their thoughts had been full of him for two days, and what else could they, could we, believe?

"Thus the Invisible Master was established still farther as a reality, a criminal who walked unseen. Hardly any in New York doubted his existence after that first amazing robbery, and it was probably that robbery that gave Taylor, the payclerk at the Etna Construction Company, his idea for his robbery and murder that night. For it was Taylor who took the money and who killed his fellow-clerk, Barsoff, on that night. He believed like everyone else that the bank robbery that afternoon had been committed by the Invisible Master, and saw a chance to commit a crime that would inevitably be blamed upon the same unseen criminal.

"He and Barsoff were in the pay-office building, both armed. Taylor had the packages of money ready, and at the moment selected he flung the door open from inside without showing himself to the guards outside. In the next instant he drew his gun and shot Barsoff through the heart, then stuck the gun and money alike into his pockets and was staggering against the wall a moment later when the guards burst in. They never thought of questioning or searching him, so strong was their own belief in the Invisible Master, and that it was he who had rushed unseen into the little office and committed the murder and theft!

"By the next morning all New York was cold with fear of the Invisible Master, and hardly a living soul doubted by then his existence. The evidence was too strong! And seeing this, Allen saw his chance to commit the triple murder of his partners which was the third crime to be laid to the Invisible Master's credit. There had been bad blood between the four partners—they were meeting on that day, you remember, to dissolve their partnership because of their enmity, and Allen had resolved to revenge himself on the other three.

"He wrote a letter purporting to be a threat from the Invisible Master, a demand for a hundred thousand dollars, and mailed it at a time calculated to bring it to their office before

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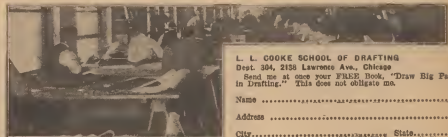
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(Continued on Page 376)

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The Invisible Master (Continued from Page 375)

noon on the next day. They were settling their accounts, the letter was opened and brought by their excited secretary, and Allen led them in laughing it down. When the hour of eleven came, though, the hour specified in the threat, Allen rose and walked behind his three partners, who were bent over the accounts. Three shots sent quick bullets crashing into their skulls, from behind, and another shot a bullet into the opposite wall. Allen leaped back to that wall, pocketing the gun, and when the others who had heard rushed into the room they found him standing by the bullet-pierced wall, apparently overcome with horror. There was the threatening letter lying on the table, and none doubted for a moment but that the Invisible Master had carried out his threat and had slain three of the partners but had been forced to flee before he could kill the fourth or snatch any of the securities on the table.

The Three Crimes

"Thus three crimes had been committed that every soul in the city believed implicitly had been committed by the Invisible Master! For the obsession of his presence had been spread so that all believed him roaming its ways, and no suspicion fell on Harkness or Taylor or Allen because in the ordinary course of things they would never have committed crimes which would be blamed so swiftly and inevitably upon them. What all forgot was that the ordinary course of things had been changed, and that the three had in each case counted, and counted correctly, upon the Invisible Master obsession turning away all suspicion from themselves toward the unseen criminal. As it happened, I ordered the usual routine investigation of Harkness in the first crime, though not for a moment believing him guilty, so strong was my own belief in the Invisible Master. But it was that bit of routine that shattered the whole great scheme in the end.

"As it was, though, Grantham had achieved his third great step, and all New York was in panic from the crimes which it believed the Invisible Master had committed. And Grantham himself had not needed to be concerned with a single one of those crimes! He had needed only to sit back, knowing that as surely as human nature was human nature, crime after crime would be committed by those who would blame it on the Invisible Master, and that those crimes would as surely raise up a greater and greater terror for the Invisible Master's name! If it had not been Harkness and Taylor and Allen, it would have been others!

(Continued on Page 377)

The Invisible Master

(Continued from Page 376)

"Thus the fear of the Invisible Master, as Grantham had foreseen, was now convulsing all the great city, and that was what he had waited for. He sent in instantly that letter demanding the payment of five million dollars as the price of the Invisible Master's departure from the city. It was sheer, colossal bluff, and it succeeded! For with the peoples of New York mad with fear of the Invisible Master, with its ordinary life falling into chaos under that fear, the money was swiftly raised by the city's leaders who were losing far more than that in this storm of panic. Kingston was appointed to place the money at the requested spot, and since the letter had mockingly given the police liberty to attempt the capture of the Invisible Master, Grantham was able to suggest a scheme by which he might be captured, using his warning bell.

"That scheme, of course, was devised only to the end that Grantham might accompany Kingston in to place the money. For Grantham, before he had written the letter specifying the spot where the money was to be placed, had been to that spot and had arranged a clever hiding-place near the boulder, a niche in the earth covered by an earth-masked trapdoor. He and Kingston went in, they placed the steel box on the boulder, after stretching their wire around, and then waited with drawn guns, no doubt, while we all waited around them in a great circle.

"Then when Grantham judged the wait long enough, he himself rang the bell beside him by making contact with his batteries, and as Kingston naturally cried out in astonishment he cried out with him, then gave an exclamation in a feigned deeper voice and at the same moment shot Kingston dead, and sent another bullet through his own left shoulder, the last touch of verisimilitude needed to remove any trace of suspicion from him. It was but the work of an instant to grasp the box and stow it in the niche beside him, all prepared, and slam down the masked door of it and then crouch beside Kingston. None of us doubted for a moment his story that the Invisible Master had shot Kingston and himself and escaped with the money. We came back to town believing that the whole thing was over.

Over the Trail

"But when I got back to headquarters I found awaiting me the report of the man I had given the routine job of looking up young Harkness. The report stated that Harkness was a young man without any known income but his salary, but stated also that he had in the last few weeks lost nearly fifty thousand dollars through

(Continued on Page 378)


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REMEMBER
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The Invisible Master

(Continued from Page 377)

a certain broker on stocks. I was amazed. Where had he gotten the money? I recalled that it had been almost exactly that amount the Invisible Master had been blamed with taking from the bank, and for the first time I was suspicious of Harkness.

"I had them bring him to headquarters at once, and we hadn't sweated him fifteen minutes before he confessed that he'd seen the chance to feed his embezzlement by blaming a theft on the Invisible Master. I didn't know what to think. Could it be that the other crimes were the same in nature? I had them round up Taylor and Allen at once. Taylor was found on the point of sailing for Europe, having resigned his position on the ostensible account of shattered nerves. He proved a harder case than Harkness, but an hour of grilling brought from him the admission that he too had blamed his theft of the money and killing of Barsoff on the Invisible Master, and had only planned the crime because he saw a chance to do it thus free of all suspicion. I don't think he'd ever have come clean if we hadn't found most of the money involved there in his grips.

"Allen, though, went to pieces at our first question and confessed volubly that his crazy hatred of his three partners had made him plan a killing of them that all would think the Invisible Master's work. The funny thing was, too, that each one of the three believed that the other two crimes had been really the Invisible Master's work!

"I was amazed, stupefied. If the Invisible Master had not committed those crimes, then his demand for the five millions was simply a gigantic bluff. Was there, then, any Invisible Master at all? Was there, the thought flashed over me for the first time, any such power of invisibility as Grantham claimed to have discovered? I boiled it all down and found that the only real evidence of the invisibility part of it was the demonstration Grantham had given. I grabbed all the books on optics I could find in an effort to learn whether such a demonstration could be faked, and soon found out about the tourmaline crystals and their remarkable property. It all fitted in exactly with the demonstration as it had been described to me. Grantham had made no demonstrations at all since that first one, nor had we dreamed of asking him for them, so utter was our belief in his word and in the Invisible Master's existence.

"I made some swift inquiries and the whole thing burst clear on me. There had never been any invisibility or any Invisible Master at all. Grantham had planned the great bluff that

(Continued on Page 379)

SONG WRITERS!



Substantial Advance Royalties are paid on work found acceptable for publication. Anyone wishing to write either the words or music for songs may submit work for free examination and advice. Postage and necessary New demand created by "Talking Pictures," fully described in our free book. Write for it today—Newcomer Associates, 751 Earle Building, New York, N. Y.

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Advertisements in this section are inserted at the cost of seven cents per word for each insertion—name and address each count as one word. Cash should accompany all classified advertisements unless placed by

a recognized advertising agency. No less than ten words are accepted. Advertising for the May 1930 issue should be received not later than March 12th.

ASTROLOGY

ASTROLOGY—Know your future, 1930. Send birthdate and \$1.00. Ask two questions. J. Jones, 320 Horton Avenue, Detroit, Michigan.

CHEMICALS

BOOKLET OF EXPERIMENTS and chemical catalog. 15c. General Chemical Company, Box 397, Reading, Pa.

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tunity. Experience unnecessary. Particulars Free. Write, George Wagner, 2190-B Broadway, N. Y.

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LEARN TATTOOING. Instruction catalog, dime. Müller, X431 Main, Norfolk, Virginia.

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LOST VITALITY—The Specific Pill and Winchester's Hypophosphites, \$1.00 per box or bottle, postpaid, literature free. Winchester & Company, Established 72 years, Box 237, Mount Vernon, New York.

PRINTING

100 of EACH. Commercial Letterheads and Envelopes, printed, your copy, \$1.50. Crane, Box 4814, Kansas City, Missouri.

Don't Fail to Read! The Dust of Egypt

by Seabury Quinn

in the April issue of

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A new and extremely efficient type of detective combats the terror out of the dust of ancient Egypt—Jules de Grandin, French psycho expert and scientist. Make the acquaintance of this super-detective now. Many thousands of enthusiastic readers are the devoted admirers of this newest and greatest of the detectives in modern fiction. April issue for sale at all newsstands March 1st, or mail 25c to WEIRD TALES, 840 N. Michigan Ave., Chicago, Illinois.

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The Invisible Master

(Continued from Page 378)

was to wring five millions out of the city, had built it up from the trick of that first demonstration and from the circumstantial evidence he was able to gather to support the thing, had used the crimes that inevitably resulted from the city's belief in the Invisible Master to make that belief even stronger. I drove out to the place where we were last night and it took but minutes of searching to find the concealed niche beside the stone where the money still lay.

"Undoubtedly Grantham meant to retrieve it later on, and undoubtedly he would have refused ever to give out any information or any demonstrations of his invisibility-method, by saying that he would take no chances on losing another invisible criminal on the world. Gray would never have been found, and would then have been believed always the unseen criminal. Almost Grantham won, and would have won had not one routine and unthinking step of mine defeated him. Yet he must have known, too, that there was always a chance of losing, for when I came out this morning after telling him over the phone to be waiting here for some new information I was bringing, he had the cyanide with him. And the rest—you saw how he took his one way out."

When Wade had finished Carton and Ellsworth gazed at him across the sunlit laboratory, spellbound. It was Carton who at last found his voice.

"And we never guessed—we never dreamed—that there was never any Invisible Master!"

Wade was looking thoughtfully out of the window. "Did I say there wasn't? I think I was wrong in that, after all—I think there was an Invisible Master whose hand has lain heavy on New York for these last days. Fear!—the fear that Grantham loosed on the city for his own ends, the fear that stalked its ways and was by day and night its unseen lord! It was that that was the true Invisible Master!"

THE END

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Be sure to procure a copy immediately from your newsstand.

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"The Apo Cycle," by Claire Winger Harris

"Via the Hewitt Ray," by M. F. Rupert

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Some of these stories have been unavailable for a long time. The publishers have sought them from original sources and now present them in this form for the first time! Due to the great demand for this extensively collected first edition of the One Volume H. G. Wells, we have been able to secure only a limited supply from the publishers. We are compelled to set a time limit of fifteen days for this offer and our small supply is going fast. If your copy will be absolutely sure to obtain your wish and gain all the advantages this offer holds you must act at once!

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The Hammering Man

(Continued from Page 322)

Cleared Up

"When I received Mr. Edwards' letter this morning," Trant said in answer to the questions that showered upon him, "it was clear to me at once that the advertisement he inclosed depended for its appeal on reminding Eva Silber of some event of prime importance to herself, but also, from the wording employed, of popular or national significance as well. You further told me that October 30th was a special holiday with Miss Silber. That, I found, to be the date of the Czar's manifesto of freedom and declaration of amnesty to political prisoners. At once it flashed upon me!

"Eva Silber was a Russian. The difference between the 17th given in the advertisements and the 30th—thirteen days—is just the present difference between the old-style calendar used in Russia and ours.

"Before going to the Crerar Library, then, it was clear that we had to do with a Russian revolutionary intrigue. At the library I obtained the key to the cipher and translated the advertisement, obtaining the name of Meyan and his address, and also the name and address of Dmitri Vasil, a well-known prorevolutionary writer. To my surprise, Vasil knew nothing of any revolutionist named Meyan. It was inconceivable that a revolutionary emissary should come to Chicago and he not know of it. It became necessary to find Meyan immediately.

"My first direct clew was the hammering that we heard in this house. It was too much to suppose that in two separate instances this hammering should be heard, and in each case Eva's father be present and no other discoverable agent, and that still he should have had nothing to do with it. Obviously, it must have been Herman Silber who did the hammering at Eva's home and here in this house. It was obvious, too, that Herman Silber was the 'your own' of the advertisement.

"To test Meyan, whom we found in the saloon, was not difficult. I arranged to have him overhear some one speaking of an arrest at Warsaw, which would at once suggest itself as a hotbed of Russian revolutionists to either a revolutionist or a police agent; but the idea would certainly give positive and very opposite reactions if the man were a true revolutionist or if he were a spy. Meyan's pulse so strengthened and slowed—as under a pleasurable stimulus—that I felt I had received confirmation of my suspicions, though I had not then the information which would enable me to expose the man. To secure this I sought out Dmitri Vasil. He introduced me to Munikov, who had been a friend of Silber before his imprisonment, and between them I got the history of Herman Silber and his daughter.

"I explained to Munikov and Vasil

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THERE is no more gratifying way to gain celebrity and add to your income than by writing. Journalism is a profession requiring no outlay except for pens and paper, and publications all over the world are clamoring for stories and articles of every nature. The magazine you are reading, as well as every other one, pays high prices for material that is accepted.

How often you have struck upon an idea that you knew would make good reading! Do you know how to write it up—how to market it? Are you familiar with the various "kinks" that distinguish the practised writer from the amateur?

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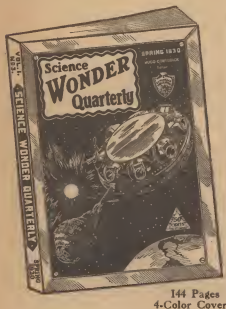
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SPG-4

(Continued on Page 381)

Announcement

The great Spring issue of the **SCIENCE WONDER QUARTERLY** will be on the newstands on or before March 15th. . . .



THE STONE FROM THE MOON

By Otto Willit Gail

In this sequel of the "Shot Into Infinity" Mr. Gail gives us a full-length novel of the most amazing romance, adventure and interplanetary travel. The mad dashes from planet to planet to thrill an age-old secret of the world will thrill the most cold-blooded reader.

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SD-4

Enclosed find \$1.25 for which please send me the next four issues of the **QUARTERLY**. (Canada and foreign \$1.50).

Name

Address

City State

The Hammering Man

(Continued from Page 380)

that the methods of the psychological laboratory would be as efficacious in picking out a spy among true men as I have many times proved them to be in convicting the criminal.

"Every emotion reacts upon the pulse, which strengthens in joy and weakens in sorrow, grows slower with anger, faster with despair; and as every slightest variation it undergoes can be detected and registered by the sphgmograph—I felt certain that if I could test the three men together by having Miss Silber tell her father's story aloud, I could determine conclusively by comparison of the records of the two true revolutionists with that of Meyan, whether his sympathies were really with the revolutionist party. I arranged with Munikov and Vassili to come here with me to-night, and after Meyan had arrived, they left us here and went to him as representatives of the revolutionary movement to ask his credentials.

"When he could furnish none, they proposed, and in fact forced him, into this test. It is a dangerous thing to endeavor to pass one's self off as a revolutionist, and it was safer for him to submit to a test than to have his mission frustrated by incurring not only their suspicion, but possibly death. Completely ignorant of the pitiless powers of psychological methods, and confiding in his steely nerves, which undoubtedly have carried him through many less searching ordeals, he agreed. You saw how perfectly he was able to control his face and every movement of his body while the test went on. But you can see here," Trant spread out his strips of smoked paper, "on these records, which I shall preserve by passing them through a bath of varnish, how useless that self-control was, since the sphgmograph recorded by its moving pencil the hidden feelings of his heart.

"As I lay these side by side, you can see how consistently at each point in the story, Munikov and Vassili experienced the same feelings, but Meyan had feelings which were different. I did not dream, of course, when I started the test that I would discover in Meyan the same man who had betrayed Herman Silber. It was only when at her first mention of Valerian Urth I obtained from Meyan this startling and remarkable record," he pointed to a place where the line suddenly had grown almost straight and flat, "that I realized that if the man before me was not himself Urth, he at least had some close and, under the circumstances, oppressive connection with him.

Cypher

"Eva Silber had still the note that had been sent to summon her father on the errand of mercy which had caused his imprisonment.

"She gave it to me before you entered." (Continued on page 382)

FREE! Body Chart

If you will mail the coupon below, this Anatomical and Physiological Chart will be mailed to you without one cent of expense. It shows the location of the Organs, Bones of the Body, Muscles of the Body, Head and Vertebra Column and tells you how the nerves radiate from your spinal cord to all organs of the body. This chart should be in every home.

Where Is That PAIN?

It may be in the neck, back, hips, stomach, liver, legs or arms. Wherever it is, the chart will help to show you the location and cause of your ailment. For instance this chart will help you locate vermiform appendix pains. Hundreds of lives might have been saved if people had known the location and character of the pain and had received proper attention.

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The Hammering Man

(Continued from Page 381)

tered the room. I was certain that of all men in the world there was but one who could recognize or feel any emotion at sight of that yellowed and time-worn paper; and that man was Valerian Urth, who had used it to betray Herman Silber.

"I showed it to Meyan, and obtained this really amazing reaction which ends his record." The psychologist pointed to the record. "It assured me that Meyan and Urth were one."

"This is amazing, Mr. Trant," Cuthbert Edwards said. "But you have left unexplained the most perplexing feature of all—the hammering!"

"To communicate with one another from their solitary cells, Russian prisoners long ago devised a code of spelling letters by knocking upon the wall—a code widely spread and known by every revolutionist. It is extremely simple; the letters of the alphabet," Trant took from his pocket a slip of paper, "are arranged in this manner."

He set down rapidly the alphabet, omitting two letters, arranged in four lines, thus:

a	b	c	d	e	f
g	h	i	k	l	m
n	o	p	r	s	t
u	v	w	x	y	z

"A letter is made," the psychologist explained, "by giving first the proper number of knocks for the line, a short pause, then knocks for the number of the letter in the line. For instance, e is one knock and then five; y is four knocks and then five."

"By means of this code I translated the figures in the advertisement and obtained Meyan's name and address. I presume he used it not only in the advertisement, but at the office, because his long experience had taught him that Herman Silber, as many another man condemned to the horrors of a Russian prison for a term of years, had probably lost the power of speech, and continued to communicate, in freedom, by the means he had used for so many years in prison."

"Wonderful, Mr. Trant, wonderful!" exclaimed Cuthbert Edwards. "I only regret that we can do nothing to Meyan; for there is no law, I think, by which he can be punished."

The psychologist's face darkened. "Vengeance is not ours," he answered, simply. "But I have given the key of Meyan's room to Munikov!"

The Elder Edwards, clearing his throat, moved over toward Eva and put his arm about her as though to protect her.

"Since you must see that you cannot go back to Russia, my dear," he said awkwardly, "will you not let me welcome you now into your place in my home?"

And as the son sprang swiftly forward and caught his father's hand, Trant took up his instrument cases under his arm, and went out alone into the warm April night.

THE END

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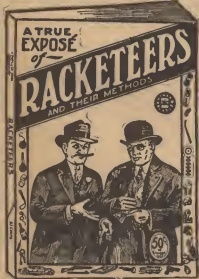
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